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## MILITARY SPECIFICATIONS

### JOINT OPERATIONS GRAPHICS SERIES 1501A AND 1501 (JOG AIR/GROUND)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification defines requirements for the Defense Mapping Agency's (DMA) 1:250,000 Scale Joint Operations Graphics Series 1501A (Air) and 1501 (Ground).

1.2 Purpose. The purpose of this specification is to assure uniformity of treatment among all mapping and charting elements, primarily DMA and its contractors, engaged in a coordinated production and maintenance program for this product. Feature requirements are stated in terms of DMA's Feature Attribute Coding Standard (FACS), to maintain consistency between various production methods. The use of FACS in this specification is not intended to imply any external digital data coding standard used by DMA's Digital Production System (DPS). DPS is the primary intended, but not exclusive, method for production of this product at this time. The Digital Geographic Information Exchange Standard (DIGEST) Feature Attribute Coding Catalog (FACC), not FACS, is the approved coding standard for the exchange of digital geographic data, as well as the standard for DMA's Vector Product Format product line. FACC may be included in, or replace FACS in a future edition of this specification.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, Defense Mapping Agency, ATTN.: PR, MAIL STOP A-13, 8613 Lee Highway, Fairfax, VA 22031-2137 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

AREA MCGT

DISTRIBUTION STATEMENT A. Approved for public release; distribution unlimited.

### 1.3 Security.

1.3.1 Security classification. This specification is UNCLASSIFIED. The security classification of the products generated by the use of this specification will be the lowest category practicable. When it is necessary to assign a security classification to the product, it shall be in accordance with established national security procedures.

## 2. APPLICABLE DOCUMENTS

### 2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

#### STANDARDS

##### MILITARY

MIL-HDBK-129	-Military Levels of Protection
MIL-STD-2402	-MC&G Symbology
MIL-STD-2403	-MC&G Product Generation Rules
MIL-STD-2408	-MC&G Glossary of Feature/Attribute Definitions
MIL-STD-2409	-MC&G Accuracy
MIL-STD-2410	-MC&G Reproduction and Printing
MIL-STD-2414	-Defense Mapping Agency Bar Coding

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DMA TM 8358.1 - "Datums, Ellipsoids, Grids, and Grid Reference Systems"

DMA TM 8358.2 - "The Universal Grids; UPS and UTM Grids"

(Copies of DMA TM 8358.1 and DMA TM 8358.2 are available from the Defense Mapping Agency Combat Support Center, Washington, D.C. 20816-0010).

DoD Standard Printing Color (SPC) Catalog

(Copies of the DoD Standard Printing Color Catalog is available from Defense Mapping Agency Graphic Arts, Bethesda, Maryland 20816-0010.

2.2 Non-Government publications. This section is not applicable to this specification.

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards) the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first artical inspection (see 6.3) in accordance with 4.3.

3.2 Accuracy. Series 1501A (AIR) and 1501 (GROUND) are required to meet the accuracy's prescribed below.

3.2.1 Horizontal accuracy. The horizontal accuracy is to meet category 2 mapping standards. This requires 90 percent (90%) of all planimetric features, except those unavoidable displaced by exaggerated size of symbols, be located within 0.50 mm (125 meters or 410 feet) of their geographical position as referred to map projection. Features are required to be carefully and accurately shown by positioning, orienting, and aligning those features selected to be shown to the maximum degree practicable. Any displacement of portrayal due to adjustment between source materials and symbolization shall be held to the absolute minimum.

3.2.2 Vertical accuracy. Vertical accuracy shall vary in accordance with the percentage of slope characteristic for the terrain being mapped. Generally, the contour accuracy to meet category 2 mapping standards will be equal to the contour interval (90% assurance) prescribed for that percent of slope. However, for areas of flat or rolling ground (slopes 0 to 10%), there is a critical requirement that contours be portrayed at a 25 meter interval. These 25 meter contours must meet an accuracy of 25

meters (90% assurance) over distances of 100 miles and be accurate to one-half the contour interval over distances of 20 to 30 miles.

a. For regions where characteristic slope exceeds 10 percent, the necessity to portray an area of supplementary contours at 25 meter intervals to the most stringent accuracy established for contours at this interval may occur.

b. The following (Figure 1) is a definitive requirement statement of contour accuracy's to be applied for category 2 mapping standards.

Percentage of Slope	Contour Interval	Accuracy Objective
Below 10%	25 meters	25 meters, 90% assurance, 100 miles distance.
10 to 20%	50 meters	50 meters, 90% assurance, 100 miles distance.
Above 20%	100 meters	As slope and interval increase, accuracy will be equal to the interval; i.e., 200 meter interval with 200 meter accuracy (90% assurance, 100 miles)

FIGURE 1. Contour accuracy's for category 2 mapping.

3.2.3 Displaced features. The accuracies stated above are for well defined points such as cross roads, point features, diagnostic and control points, etc. Feature symbols which are displaced, are excluded from the accuracy requirement stated above.

3.3 Datum. See also 3.10, Reference System.

3.3.1 Horizontal datum. For new production, and as map/chart sheets are revised or updated for periodic maintenance, the WGS 84 or NAD 83 datum and where appropriate a revised military grid system shall be depicted as a primary grid. Old (local) datum's will be depicted as secondary grids with tick marks along the border of the sheet. A grid conversion note shall also be placed in the margin area. Additionally, both the old and new 100,000 meter square two-letter identifiers shall be depicted on the map/chart, if applicable. Appropriate margin notes shall be added to explain the dual lettering.

3.3.2 Vertical datum. Vertical datum shall be mean sea level (MSL).

3.4 Adjoining data set and chart match. Every effort shall be made to match the new graphic with adjoining sheets. In attempting to match, however, no errors of position shall be



introduced into the new graphic, nor shall any factual errors be made in an attempt to tie to adjoining sheets. Position and detail of whichever of the sheets is being evaluated as being more reliable shall be retained.

3.4.1 Agency agreements for matching. If a graphic adjoins another which is being prepared by another agency, by agreement one of the agencies shall supply the other with a match strip of the common edge.

3.5 Series. Refer to: APPENDIX B-Joint Operations Graphic 1501A-AIR Style Sheet, and APPENDIX C-Joint Operations Graphic 1501-GROUND Style Sheet.

3.6 Quality. Final product quality shall reflect the quality elements expressed by each appropriate section within MIL-STD-2402, MIL-STD-2403, MIL-STD-2408, MIL-STD-2409, MIL-STD-2410 and MIL-STD-2414. A production history shall be written concurrently with the development of the graphic manuscript and shall include precise descriptions of source material utilization and of all pertinent cartographic and control problems with the solutions that were applied.

3.7 Scale. The Joint Operations Graphics AIR (A) and GROUND (G) shall be produced at 1:250,000 scale.

3.8 Map/Chart design.

3.8.1 Standard sheet lines. Geographical area of coverage for each individual JOG sheet shall be based on subdivisions of the "International Map of the World (IMW)" 1:1,000,000 scale sheet numbering system. The number of 1:250,000 scale graphics contained within each IMW sheet will vary from 12 to 16, depending on the latitude. Shifting of the geographic limits of a graphic from its standard IMW position is permissible to avoid unnecessary production of graphics. However, the elimination of a graphic is not the sole criterion. Other considerations are the effect on the sheet lines of surrounding graphics, the coverage on the affected graphics, and the continuity of information.

3.8.2 Non-standard sheet limits and insets. Where the elimination of a graphic would require the shifting of the sheet lines of several graphics, the graphic would not normally be eliminated unless the new sheet lines of the other graphics are an improvement in the coverage; i.e., the major related features are shown on one graphic. The coverage should always be considered to avoid separating related features which, if possible, should be presented as a whole. The continuity of information should not be disrupted by the elimination of a water area where the relationship between land masses is important for planning or flying purposes.

3.8.3 Overlap areas. Each sheet shall provide an overlap area (bleed edge) of the adjacent sheets to the north and east.

This overlap area (bleed edge) shall be squared off at the northeast corner. The narrowest width shall be a minimum of 15.25 mm plus 2.55 mm allowance to assure that the detail contained on the graphic will extend to the edges of the sheet after it is trimmed. The overlap areas (bleed edge) may be reduced where necessary to accommodate placement of margin data. In no case, however, will the overlap (bleed edge) be less than 2.55 mm at its narrowest point, after the graphic has been trimmed.

a. Breaking of the south and/or west geographic limits of a graphic is also permissible to avoid unnecessary production. However, the extended planimetric detail shall not exceed the trim size from the projection.

b. For graphics shifted from the standard IMW position, the sheet number is that which, in the standard system, relates to the greater part of the graphic.

c. Insets shall not be shown.

d. Refer to the Appendices B and C, JOG Style Sheets.

3.8.4 Work limits. In neither of the instances sited in 3.8.3 and 3.8.3.a, shall the maximum trim size 55.880 cm by 73.660 cm be exceeded.

3.8.5 Trim size. Trim line measurements are from the west tip of north, and south tip of east projection lines.

a. Measurement is 15.2 mm.

b. Imaginary lines are constructed from their points east and north to form a 90° angle northeast.

c. No type is placed closer than 2.5 mm to this line.

d. Refer to Appendices B or C, JOG Style Sheets.

### 3.9 Projection.

a. Between 84° North and 80° South, the Transverse Mercator Projection shall be used. Beyond the 84° North parallel and the 80° South parallel, the Polar Stereographic Projection shall be used.

b. The basic projection layout must be accurate within ± 0.50 mm diagonal measurement.

c. Full lines of latitude shall be shown at 15-minute intervals with 1-minute ticks shown thereon.

d. Between latitudes 0° and 76°, full lines of longitude shall be shown at 15-minute intervals with 1-minute ticks shown thereon. Between latitudes 76° to 84° North, and between 76° to 80°

South, full lines of longitude shall be shown at 30-minute intervals with 1-minute ticks shown thereon.

e. The 1-minute ticks shall be directed away from Greenwich and away from the Equator. Ticks shall cross full lines at 0° and 180° longitude and at the Equator.

3.10 Reference system. The military grids, horizontal datum's, and ellipsoids to be used for particular areas shall be as directed in DMA TM 8358.1 and DMA TM 8358.2.

3.10.1 Standard parallel.

a. Between latitude 84° North and latitude 80° South the Transverse Mercator (TM) Grid shall be used.

b. North of 84° North and south of 80° South parallels, the Polar Stereographic (PS) Grid shall be used.

c. It is noted that existing British grids eventually will be superseded by the UTM Grid. Due to the tremendous task involved in converting the grid data, for both control and maps, the transitions must necessarily be progressive rather than instantaneous.

d. The margin shall contain notes and a sample reference box identifying the grids contained within the graphic, excluding the north and east overlaps (bleed edge).

3.10.2 Military grids. The following are minimum requirements for military grids. See APPENDIX B or C, JOG Style Sheets.

a. The first grid line in each direction from each corner of the manuscript shall be labeled with full grid values.

b. If more than one military grid falls within the area of the manuscript, the divisions between grids shall be indicated by grid junction lines with labeling identifying the grids added along the junction lines. Full grid lines shall be shown for the first easting and northing grid lines in each direction at sheet corners and at intersections of grid junction lines and neatlines.

c. The design of the grids specified to be shown in 3.10.2.a is described in DMA TM 8358.1.

d. Necessary tables for constructing UTM and UPS Grids are contained in the following Defense Mapping Agency Technical Manuals:

DMA TM 8358.1 Datums, Ellipsoids, Grids, and Grid Reference System.

DMA TM 8358.2 The Universal Grids; Universal Transverse Mercator (UTM), and Universal Polar Stereographic (UPS).

e. "When it is specified that a secondary grid be shown and when the secondary grid differs uniformly from the major grid, a coordinate conversion note may be used in lieu of showing the secondary grid." Reference DMA TM 8358.1, Datums, Ellipsoids, Grids and Grid Reference Systems and DMA TM 8358, Series Transition Phase Standard Operating Procedures, dated 21 September 1989. When a coordinate conversion note is necessary for a secondary grid the note will be patterned after the following example:

COORDINATE CONVERSION WGS 84 TO ED  
Grid: Add 30 meters E., Subtract 9 meters N.  
Geographic: Add 1.1" Long., Subtract 0.1" Lat.

This note will be in Swiss 742, 7 point condensed, upper and lower case, the box line weight will be .52 mm. The note will be positioned in the map margin area according to one of the following style sheet arrangements:

(1) 1501 Arrangement No. 1 - Directly above the Grid Reference Box and centered, top to bottom, between that and the "Depths in Meters" note with the center being at 9 mm. and centered left to right at 54 mm. across the top of the Grid Reference Box.

(2) 1501 Arrangement No. 2 - In the lower left margin directly below the translated "Depths in Meters" note and centered top to bottom between that and the Grid Reference Box with the center being at 14 mm. and centered left to right to the translated "Depths in Meters" note with the center being at 17 mm.

(3) 1501-AIR Arrangement No. 1 - Directly above the Grid Reference Box and centered top to bottom between that and the "Depths in Feet" note with the center being at 10 mm., and centered left to right at 54 mm. across the top of the Grid Reference Box.

(4) 1501-AIR Arrangement No. 2 - In the lower left margin directly below the translated "Depths in Feet" note and centered top to bottom between that and the Grid Reference Box with the center being at 14 mm. and centered left to right to the translated "Depths in Feet" note with the center being at 17 mm.

### 3.11 Margin data.

#### 3.11.1 Margin data: General.

a. The JOG style sheets (Appendix B or C) graphically illustrates the design, composition and location of margin data. All margin data contained on the graphic shall be within the trim limits of 56 cm by 74 cm.

b. The JOG style sheets portray a standard arrangement of margin information. Modifications (additions, deletions, relocation, etc.) to this arrangement is permitted to reflect conditions or requirements unique to a particular geographic region.

c. Pertinent information which has bearing on the operational soundness of the graphic, and which cannot be accommodated in the symbol legend, is shown in the form of a note. Some standard notes are illustrated on the style sheets; other notes are added as necessary.

d. Margin data shall not reflect bleeding edge information except in those cases where the highest elevation and tint band would otherwise be omitted.

### 3.11.2 World Geographic Reference System (GEOREF).

a. The GEOREF shall be shown by a diagram in the margin only.

b. The diagram shall contain a reference to the basic 15° and 1° quadrangles in which the graphics occur, excluding the north and east overlaps (bleed edge). See DMA TM 8358.1.

c. The GEOREF Diagram appears in Swiss 742, 7 and .8 point condensed and .8 point bold condensed, upper case type, and is printed in black.

### 3.11.3 Sheet name.

a. Generally, the graphic is named after its outstanding cultural or natural feature. The name of a cultural feature is customarily chosen, however, if a natural feature which is contained completely on the graphic is better known than the cultural feature, the name of the natural feature is designated. The selection is made on an individual sheet basis with no attempt being made to name graphics after one particular type of feature. The country or island group in which the sheet name feature is located shall be shown in conjunction with the sheet name. When the sheet covers more than one country, all country names shall be shown.

b. The use of alternate names is discouraged and is used only when the alternate name is well known. When used, it is enclosed in parentheses after the sheet name.

c. Abbreviations are normally avoided in the sheet name. However, established and well-known abbreviations such as St. for Saint, Mt. for Mountain, etc., may be used.

d. Diacritics, hyphens, and apostrophes are shown if they are parts of official alphabets, or if they are distinguishing characteristics of an acceptable transliteration system.

e. Duplication of sheet names shall be avoided.

f. The sheet name appears in Swiss 742, '14 point condensed, upper case type, and is printed in black.

3.11.4 Edition number.

a. The initial publication of each JOG sheet shall be identified as EDITION 1.

b. Numbering of subsequent editions of either version shall be sequentially numbered.

c. The edition number of either version shall be advanced to the next higher number upon total remake or revision of the factual data which affects the operational soundness. The following are examples of cases where the edition number will not be advanced.

(1) Changes to the margin information which do not affect the operational soundness.

(2) Correction of minor defects on reprinting to improve legibility or appearance.

d. The aeronautical overprint information which is unique to the air version may be revised without revision of the companion ground version. In this instance, the air edition will be advanced if the criteria in paragraph c. above are met. The revision of the basic information which is common to both versions of the JOG shall be the basis for advancing the edition number of both versions.

e. The 1501 AIR graphic shall include a reference to the companion 1501 graphic should one exist. This reference shall read as follows:

SERIES 1501 COMPANION SHEET IS EDITION\_\_\_\_  
(Insert appropriate edition number)

f. Edition number shall be shown in accordance with Appendices B or C to these specifications and MIL-STD-2414 for DMA stock number and bar coding.

g. The edition number appears in Swiss 742, -10 point condensed, upper case type, and is printed in black.

### 3.11.5 Sheet number.

a. The sheet number is based on the worldwide numbering system established for the International Map of the World (IMW) at 1:1,000,000 scale. Sheet numbers for Joint Operations Graphics are developed from established subdivisions of the 1:1,000,000 scale maps. The amount of 1:250,000 scale graphics within each IMW sheet varies from 12 to 16, depending on the geographic latitudes. The JOG number is the number of the basic IMW sheet within which it lies, together with the number of the numerically designated position it occupies within the IMW sheet.

b. The sheet number appears in Swiss 742, .10 point condensed upper case type, and is printed in black.

### 3.11.6 Series number.

a. The Joint Operations Graphics are a world wide series whose designations are:

(1) Series 1501 for the ground version.

(2) Series 1501 AIR for the air version.

b. The appropriate series designation shall be shown on each JOG sheet. The series number appears in Swiss 742, .10 point condensed, upper case type, and is printed in black.

### 3.11.7 Symbol legend.

a. The symbol legend defines and illustrates features represented in the area or region of coverage. A typical legend includes: populated places, roads, railroads, boundaries, vegetation, features peculiar to the area, and notes which have bearing on the operational usefulness of the graphic.

b. The extent feasible, a standard legend is applied to a country or region, even though all symbols in the legend may not occur on all component graphics.

c. Space permitting, populated place classifications should be included in the legends in both margins arrangements.

d. The symbol legend appears in Swiss 742 condensed and light condensed, upper and/or upper and lower case type, normally in 8 and 7 point sizes. The basic symbol legend appears in black, but additional colors are used as necessary to illustrate symbols.

### 3.11.8 Bar scales.

a. Bar scales provide means for making measurements on the graphics. The zero points of each bar scale (statute miles, kilometers, and nautical miles) are vertically aligned.

b. The bar scales appear in Swiss 742, 7 point condensed, upper and lower case type, and are printed in black.

### 3.11.9 Contour interval note.

a. The contour interval note provides immediate recognition of the unit of vertical measure and the interval between contours. It further indicates, when appropriate, the use of supplementary contours, form lines and combinations thereof.

b. When the relief is represented by contours, the notes are patterned after the following examples:

CONTOUR INTERVAL 100 METERS  
CONTOUR INTERVAL APPROXIMATELY 330 FEET

c. When supplementary contours are shown on the 1501 version, the note is patterned after the following example:

CONTOUR INTERVAL 100 METERS WITH SUPPLEMENTARY  
CONTOUR INTERVAL 50 METERS

d. Circumstances may dictate the representation of relief by form lines. In such cases, the note indicates the method used. Examples:

RELIEF SHOWN BY FORM LINES

CONTOUR INTERVAL 100 METERS WITH  
RELIEF PARTIALLY SHOWN BY FORM LINES

CONTOUR INTERVAL APPROXIMATELY 330 FEET  
WITH RELIEF PARTIALLY SHOWN BY FORM LINES

e. If there are no contours on a graphic but there are spot elevations, the note indicates the maximum elevation. Example:

MAXIMUM ELEVATION 18 METERS

f. The contour interval note appears in Swiss 742, 8 point condensed, upper case type, and is printed in black.

### 3.11.10 Projection note.

a. Between 84° North and 80° South, the projection note reads:

TRANSVERSE MERCATOR PROJECTION

b. For polar regions (north of 84° North and south of 80° South), the projection note reads:

POLAR STEREOGRAPHIC PROJECTION



c. The projection note appears at the bottom of the Accuracy/Reliability Diagram, in Swiss 742, 7 point condensed, upper and lower case type, and is printed in black.

3.11.11 Copyright note. A Copyright note is placed on the bottom work limit line directly under the Users note for the preferred positioning. The note is Swiss 742, 6 and 7 point condensed, upper case type, and is printed in black.

3.11.12 Grid note. The Grid note identifies the grid, zone, and ellipsoid pertinent to the sheet. It is centered in the lower margin, below the Contour Interval Note and above the User's Note. It appears in Swiss 742, 6 point light condensed, upper case type, and is printed in blue.

3.11.13 Glossary. A glossary of pertinent non-English generic terms is shown on most maps. As used herein, a generic term refers to a name or portion of a name which identifies the type of feature named on the graphic. In the name Kobbermine Bugt, for example, the generic term is Bugt (meaning bay).

a. Examples of generic terms to be included in a glossary are: bay, cape, cove, factory, hill, island, lake, marketplace, mountain, river, rock, town, village, and similar terms.

b. Adjective terms such as: inner, outer, upper, lower, large, and small, are not shown in the glossary.

c. Generic terms for political and administrative divisions are included only when they are not explained in the symbol legend.

d. Generic terms in the glossary are translated into English, plus other languages specified for the mapping project (see Appendix H).

e. Unless language translations are specified for the mapping project, a glossary is not shown on graphics containing English generic terms.

f. The generic terms on the map, regardless of the language, are listed alphabetically, according to English rules. The initial letter of a term is shown as a upper or lower case letter, in accordance with national policy. All variants of a term which appear on the graphic are listed and all possible English meanings of a term, as used on the graphic, are shown.

g. When translation to English only is required, and available space in the map margin is a critical factor, terms which recur least are translated in the interior of the graphic. This is done until the remaining terms can be accommodated in the glossary. Such translations are positioned immediately below or alongside the native term, enclosed in parentheses and are shown

in lower case type. Terms which are translated in the interior of the graphic are omitted from the glossary.

h. When translations in addition to English are required, all terms, regardless of the frequency with which they occur, are listed in the glossary.

i. The generic terms are always shown as the first column of the glossary.

j. Glossaries are prepared on an individual graphic basis. When warranted, an identical glossary may be applied to a group of graphics.

k. When margin space becomes limited, generic terms which relate to natural features may be omitted (such as rivers, mountain peaks, etc.).

l. The glossary title appears in Swiss 742, 8 point condensed, upper case type, and is printed in black. The rest of the glossary appears in Swiss 742, 7 point light condensed, upper and lower case type, and is printed in black.

3.11.14 Location diagram. JOG's shall contain a location diagram to illustrate the adjoining sheets, boundary information, and the incidence of the sheet lines of Operational Navigation Charts (ONC) and the World Area Code (WAC).

a. The diagram shows as many rectangles (representing adjoining sheets) as are necessary to surround the subject sheet representation with two sheet areas in each direction. Usually, the diagram consists of 25 rectangles, but the number may vary with arrangement of the adjoining sheets. The entire limits of any adjoining sheets are represented so that no part of an odd-size sheet is cut off. Sheets which do not contain a land area are not represented in open water areas. The diagram need not be symmetrical. The sheet under consideration is shown as the center rectangle which is accentuated by a heavy line; all other sheet representations are shown by uniformly lighter lines.

b. Circumstances will arise where the normal 25 rectangular areas are not practical to adequately depict the relationship of the subject sheet to the other sheets. The condition may occur when the sheet: is entirely surrounded by water areas and the nearest sheets are too far away; is all or part of a member of a group of islands, and it is desirable to reflect the relative positions of all islands in the group; or is part of a group of sheets which cover a region which is peninsular in shape. Under these and similar circumstances, the diagram is shown at a reduced scale, and includes the representation of as many sheets as are necessary to reflect the relative position of the sheet under consideration to the other sheets. A common diagram may be shown on all sheets concerned, with the sheet under consideration accentuated by a heavy line.

c. Coastlines and shorelines of principal rivers and lakes are represented in the diagram. The prime consideration for including these features is the value they afford through depiction of the relative geographic locations of the sheets. Because of the small scale of the diagram, delineations of these features may be generalized.

(1) Large and important rivers which plot in the diagram as single lines may be exaggerated to show an open water area whose minimum width is 0.50 mm.

(2) The size of small islands may be exaggerated to delineate their lines.

(3) Coastlines and shorelines are shown in blue. A blue tint is shown in open water areas.

(4) Names of open water areas, shown in Swiss 742, 5 to 7 point light condensed, italic type, printed in blue, are added when practicable.

d. All sheets, whether published or not, are presented. The sheet number of each represented sheet is shown. A Disclaimer Note is placed directly under the location diagram to caveat the use of the sheet numbers. The note is Swiss 742, 6 point condensed type and printed in black. This note reads as follows:

FOR INDEX PURPOSES ONLY - NOT NECESSARILY AN INDICATION OF PUBLISHED MAPS

e. Normally, only international boundaries are shown in the diagram. The country names are centered in their respective areas or as space permits.

f. In certain areas, information concerning de facto boundaries, limits of administration, armistice lines, etc., are included. These data are shown as an overprint to the diagram and are shown in the color of the road fills. The appropriate boundaries, their labels, and related notes are shown in accordance with national policy.

g. The diagram is labeled with geographic coordinates. For a symmetrical diagram, values shall be shown at the corners of the north and the west edges of the diagram. For a non-symmetrical diagram, sufficient values are added at all edges of the diagram to provide a geographic orientation of all represented sheets.

h. The location diagram appears in Swiss 742, condensed and light condensed type, usually in 6 to 8 point sizes. The basic diagram appears in black, but additional colors are used as necessary.

3.11.15 Disclaimer notes.

3.11.15.1 Boundary disclaimer notes. When required by national policy, boundary disclaimers should be shown.

a. The following note shall appear on graphics which show lines separating areas of national sovereignty (e.g., armistice lines, cease-fire lines) or which show both international boundaries and lines separating areas of sovereignty either on the graphic or in a diagram in the margin:

**BOUNDARY REPRESENTATION IS NOT NECESSARILY AUTHORITATIVE**

b. When the producing nation does not recognize a country's administrative control of areas formerly having independent status, the following note, in addition to the standard boundary disclaimer, shall be stated:

**THE (Name of government) HAS NOT RECOGNIZED THE INCORPORATION OF (Name of country or countries) INTO (Name of controlling country).**

c. The Boundary Disclaimer Note appears in Swiss 742, 7 point condensed, upper case type, and is printed in black.

3.11.15.2 Names disclaimer notes. When required by national policy, names disclaimers should be shown. (Names disclaimers will most probably be applied in cases where the producing country does not recognize the political status of an entity, but uses names having local sanction.)

a. For graphics that completely cover an area requiring a disclaimer, the note shall read:

**GEOGRAPHIC NAMES OR THEIR SPELLINGS DO NOT NECESSARILY REFLECT RECOGNITION OF THE POLITICAL STATUS OF THE AREA BY (name of government).**

b. For graphics that partially cover an area requiring a disclaimer, the note shall read:

**GEOGRAPHIC NAMES OR THEIR SPELLINGS IN (name of country or countries) DO NOT NECESSARILY REFLECT RECOGNITION OF THE POLITICAL STATUS OF THE AREA(S) BY (name of government).**

c. The names disclaimer note appears in Swiss 742, 7 point condensed, upper and lower case type, and is printed in black.

3.11.16 Language requirements.

3.11.16.1 Language requirements: General. International map standardization agreements and bilateral cooperative mapping agreements may require translations of certain items appearing in the margin of the graphic. When translations are required, the

language or languages to be applied, in addition to English, are indicated in Appendix H.

3.11.16.2 Items requiring translation. As a minimum, the items listed below shall be translated:

- a. Symbol legend.
- b. Contour interval note.
- c. Grid notes.
- d. Instructions on grid referencing.
- e. Information on true and magnetic north.
- f. Declination data.
- g. Glossary.
- h. Unit of elevation (if not contained in the legend).
- i. Pertinent notes shown in the margin of the graphic.
- j. Copyright note.
- k. Bar code/Stock numbers.

3.11.16.3 Language selection. The maximum number of languages shown on an individual graphic is three; one of the languages is English, which is always shown. This criterion introduces problems when more than one country is represented on a graphic, or when two languages are prescribed for a country. As a general guide, any of the following considerations apply:

- a. The language which is not native to a country is considered for omission.
- b. The language prescribed for the country which comprises the smallest portion of the graphic or mapping project is considered for omission.
- c. The languages appearing most frequently on adjoining graphics are considered for retention.
- d. When an important area of a country, such as a major city, is contained on a graphic, the native language for that country is retained, regardless of the preceding considerations.

3.11.17 Elevation tint diagram. Each JOG contains a margin diagram which illustrates and defines the various tints representing bands of elevation appearing on the graphic. The diagram contains as many tint bands as necessary. Tints are omitted for those elevations which exceed an indicated snow line. The elevation tint diagram appears in Swiss 742, condensed and light condensed 6, 7, and 8 point type. The basic diagram is printed in black, and there are as many colored tints as necessary.

3.11.18 Credit (Prepared by) note. Each JOG contains a credit note, which identifies DMA as the producer of the JOG and the latest date of map information. The credit note appears in Swiss 742, 8 point condensed, upper and lower case type, and is printed in black.

3.11.19 Security classification notes.

3.11.19.1 Classification marking. Under certain circumstances maps are required to bear a security classification marking. This information appears in the special instruction for the project.

3.11.19.2 Downgrading/declassification note. Each map bearing a security classification marking also identifies the classifier and contains downgrading/declassification instructions.

3.11.19.3 Special handling notes. Certain maps, classified or unclassified require notes which restrict their distribution.

a. A caveat or special handling note may be required on maps classified CONFIDENTIAL or higher. Example:

NOT RELEASABLE TO FOREIGN NATIONALS

b. A Restricted Dissemination Note may be required on UNCLASSIFIED MAPS. The wording is as follows:

**LIMITED DISTRIBUTION** Distribution authorized to DoD, and to nonDoD Government Agencies under IAW 10 U.S.C. SECT. 130 & 2796. Release authorized to U.S. DoD contractors, IAW 48 C.F.R. SECT. 252.245-7000. Refer other requests to Headquarters, DMA, ATTN.: Release Officer, Stop A-10. Destroy as "For Official Use Only." Removal of this caveat is prohibited.

3.11.20 Reliability diagram.

a. Each JOG shall contain a diagram which provides an indication of the accuracy of the individual graphic.

b. Representative illustrations of the composition of the diagram are contained in Figure 2; prevailing mapping circumstances may necessitate modification.

1. Example No. 1 illustrates area of different reliability on graphic, and a listing of individual feature categories.

2. Example No. 2 illustrates areas of different reliability on a graphic, and a group listings of features when such consolidation by category is possible.

3. Example No. 3 illustrates the circumstances when the reliability information is common for an entire graphic.

4. Example No. 4 is used when more specific information cannot be shown.

5. Example No. 5 is to be used when no information can be shown.

c. The reliability information includes:

1. Plotting accuracy. (90 Percent Assurance) of Horizontal Positions and Contours. A common accuracy range may apply to the entire graphic, or different ranges may apply to different areas of a graphic. As a maximum, three areas are represented for an individual graphic. When appropriate, the word "exceeds" is substituted for the word "within" (Reference Example 1).

2. Dates of information. A date (year) of latest information is shown for the following categories:

- (a) Man-made features.
- (b) Contours.
- (c) Coastal hydrography.
- (d) Vegetation.
- (e) All other features.

(1) A common date may apply to a category throughout a graphic, or different dates may apply to the same category, to the maximum of three areas of a graphic.

(2) The date for a category is omitted when it cannot be determined.

(3) When the data is the same for a group of categories, the individual categories are not listed.

(4) Categories not pertinent to a graphic are not listed.

3. Pertinent notes. Notes providing information which has bearing on the reliability of the graphic are included. Some prevalent notes to be shown are represented in the illustrations; other notes are included, as necessary. Datum and projection notes are always shown below the diagram (see Figure 2).

3.11.21 Bar code.

3.11.21.1 National stock number. The National Stock Number (NSN), in both bar code (left set of bars) and human readable form (HRI), is shown on each map, to uniquely identify the map in the DoD Logistics Standard Systems (DLSS). The first four digits of the NSN indicate the Federal Supply Classification (FSC), which is 7643 for topographic and 7641 for aeronautical products. The next two digits indicate the National Codification Bureau that assigned the item identification number to the item of supply. The remaining seven digits are a nonsignificant, serially assigned item identification numbers identifying the map. The letters "NSN" are shown in front of the human readable National stock number to distinguish it from the DMA stock number.

Example No. 1

**RELIABILITY OF THIS GRAPHIC**  
(as determined by standard practices)

PLOTTING ACCURACY 90% ASSURANCE	AREA I	AREA II	AREA III
Horizontal _____	within 400 ft.	within 800 ft.	within 800 ft.
Contours _____	100 ft.	200 ft.	
GRAPHIC FEATURE	DATE OF INFORMATION		
	AREA I	AREA II	AREA III
Man-made features	1964	1961	1942
Coastal hydrography			1942
Vegetation _____	1965	None	None
Contours _____	1953	1961	1942
All other features _____	1964	1964	
Road information not verified Graphic not field checked			

Horizontal Datum: European Datum  
Vertical Datum: Mean Sea Level  
Transverse Mercator Projection

Example No. 2

**RELIABILITY OF THIS GRAPHIC**  
(as determined by standard practices)

PLOTTING ACCURACY 90% ASSURANCE	AREA I	AREA II	AREA III
Horizontal _____	within 400 ft.	within 800 ft.	within 800 ft.
Contours _____	100 ft.	200 ft.	400 ft.
GRAPHIC FEATURE	DATE OF INFORMATION		
	AREA I	AREA II	AREA III
All other features	1965	1965	1942

Horizontal Datum: European Datum  
Vertical Datum: Mean Sea Level  
Transverse Mercator Projection

Example No. 3

**RELIABILITY OF THIS GRAPHIC**  
(as determined by standard practices)

PLOTTING ACCURACY 90% ASSURANCE	
Horizontal _____	within 55 ft.
Contours _____	within 33 ft.
Date of Information _____	1965
Road information not verified Graphics not checked	

Horizontal Datum: European Datum  
Vertical Datum: Mean Sea Level  
Transverse Mercator Projection

Example No. 4

**RELIABILITY OF THIS GRAPHIC**

GRAPHIC FEATURE	Date of Information
ALL FEATURES	1970

Horizontal Datum: European Datum  
Vertical Datum: Mean Sea Level  
Transverse Mercator Projection

Example No. 5

**RELIABILITY OF THIS GRAPHIC**

Compiled from best available source materials
---

Horizontal Datum: European Datum  
Vertical Datum: Mean Sea Level  
Transverse Mercator Projection

FIGURE 2. Illustrations of graphic reliability information.



3.11.21.2 DMA stock number. The DMA Stock Number and Edition Number (Figure 3) are in human readable form only. For map requisitioning purposes within DMA, the DMA Stock Number will

conform to the requirement of the DMA Automated Distribution Management System (DADMS). The DMA Stock Number will be maintained until which time the requirement to show both is phased out in favor of the NSN. The HRI edition number will remain. Both stock numbers and bar coding are shown in accordance with MIL-STD-2414, BAR CODING. The bar codes and stock numbers are shown in the bottom margin at the lower right work limit of the map (see Appendices B or C, Style Sheets).

a. The first five characters are reserved for the JOG series identification.

(1) The letter "X" is added as a suffix to the 1501 series number on the ground version.

(2) The letter "A" is added as a suffix to the 1501 series number on the air version.

b. The 6th through 15th characters are reserved for the sheet number. The number zero is added as a prefix to single-digit sheet identification numbers (1 through 9) wherever they occur.

c. The bar code and stock number is shown as an entity of 15 or less characters, without spaces between units. Examples are:

(1) For Sheet NF 48-12, Series 1501:

  
NSN 7643001234567  
DMA STOCK NO. 1501XNF4812 ED. NO. 001

(2) For Sheet ND 55, 56-1, Series 1501 AIR:

  
NSN 7641001234567  
DMA STOCK NO. 1501AND555601 ED. NO. 001

(3) For Sheet SD 3-8, Series 1501:

  
NSN 7643001234567  
DMA STOCK NO. 1501XSD0803 ED. NO. 001

d. For combination sheet numbers which cannot be accommodated within the 10-character limitation, the second and

d. For combination sheet numbers which cannot be accommodated within the 10-character limitation, the second and third zone references are omitted and the stock numbers shall appear as indicated.

- (1) For Sheet NT 13, 14, 15, 16-10, Series 1501:



- (2) For Sheet NT 13, 14, 15, 16-10, Series 1501 AIR:



3.11.22 Maximum Elevation Figures (MEF)-Series 1501 AIR  
note. Each JOG-AIR shall contain the following note in its margin. The note appears in Swiss 742, 7, 8, 10, 20, and 30 point bold condensed, type. The note is printed in aero blue (purple).

ATTENTION

THIS CHART CONTAINS  
MAXIMUM ELEVATION FIGURES (MEF)

The Maximum Elevation Figures shown in quadrangles bounded by ticked lines of latitude and longitude are represented in THOUSANDS and HUNDREDS of feet above mean sea level. †The MEF is based on information available concerning the highest known feature in each quadrangle, including terrain and obstructions (trees, towers, antennas, etc.).

EXAMPLE: 12,500 feet

125

† The last sentence should be deleted from the MEF note if indicated by individual chart conditions.

b. In areas of extensive unreliable relief, the MEF is shown only by a note spaced across the area.

3.11.23 Supersession note-1501 (Ground) Only.

a. On Series 1501, a supersession note shall be shown on a first edition graphic which is a conversion of a previously published map bearing the same sheet number. The note shall cite the series number and sheet number of the converted map. Example:

THIS GRAPHIC SUPERSEDES 1501, NF 48-6

b. A supersession note is not required on second and future editions.

c. The supersession note appears in Swiss 742, 7 point condensed, upper case type, and is printed in black.

3.11.24 Obstruction notes. Notes regarding the reliability of obstruction information shall be shown on each version of the JOG. The notes shall be as follows:

a. For Series 1501A (Air):

Powerlines are shown except within populated place limits.  
Other obstructions are shown if they are 150 feet or more above ground level. See caution note.

b. For Series 1501 (Ground):

Powerlines are shown except within populated place limits.  
Other obstructions are shown if they are 46 meters or more above ground level. See caution note.

c. The following note will appear on both JOG products.

**CAUTION**

Vertical obstructions, including powerlines, have been extracted from the most reliable sources available. However, there is no assurance that all are shown, or that their locations or heights are exact.

d. Obstruction notes appear in Swiss 742, 7 and 12 point condensed, upper and lower case. The notes are printed in blue (aero blue).

3.11.25 Users' note. All graphics shall contain a users' note. It shall be positioned as the last item in the center of the lower margin of the graphic. The note shall read:

USERS SHOULD REFER CORRECTIONS, ADDITIONS, AND COMMENTS FOR IMPROVING THIS PRODUCT TO: DIRECTOR, DEFENSE MAPPING AGENCY; ATTN.: PR, 8613 LEE HIGHWAY, FAIRFAX, VA. 22031-2137.

a. On JOG's of the United States, Central, and South America, the UK Users' Note is not required.

b. Other national producing agencies shall add an appropriate users' note to their JOG products.

c. The Users' Note appears in Swiss 742, 6 point condensed, upper case type, and is printed in black.

3.11.26 Meters-foot conversion scale. The Meters-Feet (1501) and Feet-Meters (1501 - AIR) Conversion Scales are designed to permit the conversion of intermediate values by interpolation. Where space is available, the complete scales should be shown as

indicated on the style sheets (Appendices B and C). The scale for the 1501 - AIR series should be increased in increments of 10,000 feet where necessary to include the highest elevation on the graphic. The scale appears in Swiss 742, 6 and 8 point condensed, upper case type, and is printed in black.

3.11.27 Facsimile printing. Where graphics are printed from reproduction material furnished by another country under a facsimile printing agreement, a note containing the agency code and the facsimile printing date shall be added beneath the original printing note. Example:

Reprinted by.....DMA 4-95

a. Except for special notes, when required, no other changes shall be made to the margin data on the furnished reproduction material.

b. The note shall appear in Swiss 742, 7 point light condensed, upper and lower case type, and is printed in black.

3.11.28 Terrain elevation notes. Each JOG shall contain terrain elevation notes in the margin; these notes will state the highest known elevation, and give its location in geographic and grid coordinates. The terrain elevation notes appear in Swiss 742, 7 and 8 point condensed, upper and lower case type, and are printed in black.

3.11.29 Aeronautical symbols legend. The aeronautical symbols legend defines and illustrates aeronautical features in the area of coverage.

a. To the extent feasible, a standard aeronautical symbols legend is applied to a country or region, even though all symbols in the legend may not occur on all component graphics.

b. The aeronautical symbols legend appears in Swiss 742, 7 and 8 point condensed, upper and lower case type, and is printed in blue (aero blue).

3.11.30 Air information currency. The air information currency note states the calendar date of currency, and refers the user to the NOTAMS and other sources for any updated information. The air information currency note appears in Swiss 742, condensed and bold condensed, 8, 10, and 12 point type, upper and lower case type, and is printed in blue (aero blue).

3.11.31 Magnetic note.

a. Each Series 1501 JOG contains a magnetic note patterned after the following:

MAGNETIC DECLINATION FOR 1995 IS 1° (20 MILS)  
WESTERLY OVER THE ENTIRE AREA.

b. Each Series 1501A JOG-AIR contains a magnetic note

patterned after the following:

**LINE OF EQUAL MAGNETIC VARIATION FOR 1995**  
(annual rate of change 3' decrease).

c. The magnetic note appears in Swiss 742, 8 point condensed, upper and lower case type, and is printed in blue (aero blue).

**3.11.32 Depth and elevation unit notes.**

a. Each Series 1501 JOG contains the following notes located in the margin:

**ELEVATIONS IN METERS    DEPTHS IN METERS**

b. Each Series 1501 A (JOG-AIR) contains the following notes located in the margins:

**ELEVATIONS IN FEET    DEPTHS IN FEET**

c. The depth and elevation unit notes appear in Swiss 742, 10 point, bold condensed, upper case type, and are printed in black.

**3.11.33 Miscellaneous notes.** Each JOG will contain miscellaneous notes below the lower right neatline. These notes will clarify such things as the width of a lane, powerline portrayal, etc. The miscellaneous notes appear in Swiss 742, 7 point condensed, upper and lower case type. Notes dealing with aeronautical information are printed in blue (aero blue); road/lane information notes in red/brown; the others are printed in black.

**3.11.34 Grid box.** Each Joint Operations Graphic will contain a grid box in the lower left margin. The grid box shows a sample 10,000 meter grid square and illustrates a sample 1,000 meter reference. The Grid Box appears in Swiss 742 condensed, light condensed, and bold condensed 4, 5, 6, and 8 point type, and is printed in blue.

**3.11.35 Press Note.** Each JOG will contain a press note located in the bottom right margin. The press note will identify DMA, the month and year of printing. The press note appears in Swiss 742, 7 point light condensed, upper and lower case type, and is printed in black.

**3.11.36 DMA seal.** The DMA seal will be shown on all JOG's. See Appendix B or C, Style Sheets for location.

**3.11.37 Map information as of note.** The map information note contains the year of the latest source information. The date reflects at least 50% or greater coverage for the sheet. The note is placed directly under the "Prepared by" note and is Swiss 742, 8 point condensed, upper case type, and is printed in black. See Appendix B or C, Style sheets for location.

### 3.12 Culture.

3.12.1 Roads. Roads shown on the JOG series must satisfy strategic and tactical operational requirements of ground users; consequently, the maximum number practicable must be shown, with classifications based on trafficability.

a. Of prime consideration in trafficability are: construction, weatherability, width and use of the roads.

b. Where road classification data are not available and it is anticipated that such information will continue to be unavailable, the roads shall be classified on the basis of the best logical interpretations of the source material. The principles of classification described in 3.12.1.2 must be adhered to. The continuity, alignment, and situation of the roads as shown on the sources will usually govern the classifications. When conditions permit, roads between the more important populated places shall normally receive the higher classification. If aerial photographs are available, photo interpretation will be a basis for determining road classification. When roads are classified in this manner, an appropriately worded note shall be added in the margin of the graphic indicating the method of classification. Examples are as follows:

Roads are classified from source maps.

Roads are classified from aerial photography.

3.12.1.1 Density and selection. The road net shall be well illustrated and all roads essential to the communications system must be included. Alternate routes are shown on a space available basis.

a. It is desirable to show as many connecting roads as possible within the network formed by the main and alternate roads. If choice lies between more than one connecting road, selection shall be governed by classification, continuity, destination, and importance. The road selected shall usually be the one which supplies the best-surfaced shortcut between points shown on the graphic.

b. The density of the road net will, of course, reflect and depend upon the extent of cultural development. In areas of sparse culture, it is usually possible to show all roads. While most of these should be shown, care must be exercised not to create an exaggerated impression of the system in the area by including short stretches which dead end at non-symbolized points, or less important roads which are of no significance to the users. In well-developed areas, the road net will usually be so dense that it will be impossible to show every road in the area. In well-developed areas, only those of primary importance to the

communications system should be shown; roads of lower classifications will usually have to be omitted.

### 3.12.1.2 Classification principles.

- a. When multiple categories are in question, use the lowest.
- b. A road is to be classified according to the predominate classification.
- c. The number of lanes is a controlling factor in road classification in certain cases. Where definite information from authoritative sources exist as to the number of lanes of roads, it shall be accepted. In considering road widths, only the traveled roadway shall be noted; ditch limits and right-of-way limits shall be disregarded.
- d. Basic road widths used for classification purposes shall be shown in the legend.

3.12.1.3 Inaccurate alignments. In plotting roads from sources of much smaller scale or heterogeneous nature, it is sometimes impossible to plot a road in its correct position. The point of change in accuracy of alignment shall be indicated. Appropriate labeling shall be added on each side of the point. Examples:

ACCURATE ALIGNMENT | APPROXIMATE ALIGNMENT

APPROXIMATE ALIGNMENT | ACCURATE ALIGNMENT

3.12.1.4 Through routes and streets within populated places. Selected roads and streets shall be included within populated places which are shown by a plotted outline.

- a. The number of roads to be shown within an outlined populated place is dependent on the size of the area and on the number of roads entering the area.
- b. Streets in outlined populated places will be shown by a standard road casing symbol within the outlined built-up area. The built-up area tint is omitted from the street symbol.
- c. Through roads receiving preference with a connecting network of other roads is shown on a space available basis.
- d. Selected through routes shall be shown at the same road classification as the road within the outlined built-up area.

### 3.12.1.5 Roads under construction.

a. Roads under construction are defined as new roads on which actual construction work has been initiated and which are definitely closed to traffic.

1. Roads under repair shall not be regarded as under construction and shall receive normal treatment.

2. Proposed roads shall not be considered as roads under construction and shall not be symbolized.

3. If work on a road under construction is nearly complete and it is probable that it will be completed by the time the graphic is published, or within a reasonable time thereafter, the road shall be given the symbolization of a completed road.

b. Roads under construction shall be indicated by the label *CONSTRUCTION* or *CONSTR* added parallel to the symbol. A short tick (point of change symbol) shall mark the beginning and end of the part of road under construction. The classification of the road when completed shall be indicated if the information is available.

3.12.1.6 Lane and road width information.

a. When the number of lanes along a particular stretch of road exceeds two (2), the condition shall be indicated by labeling.

b. Lane information shall be omitted from outlined populated places (Built-up areas).

c. A tick (point of change symbol) placed at right angles to the road shall mark the point of change in the number of lanes of any road. Labeling identifying the number of lanes shall always be placed adjacent to such ticks or, in short stretches, centered between the ticks.

d. If a road leaving a populated area is more than two lanes wide, it will not be necessary to add a tick at the point of exit from the populated area; the labeling will be considered sufficient.

e. When definite information from an authoritative source exists specifying the number of lanes, the information shall be used. When no specific lane information exists, the width of a lane shall generally be considered as approximately 2.5 meters (8 feet).

f. In classifying a road as to the number of lanes, if a short stretch of road less than approximately 12.70 mm in length has a number of lanes more or less than the rest of the roadway, the variation in width shall be disregarded. If such a stretch is approximately 12.70 mm or more in length, the stretch shall be classified as a unit in itself, independent from the rest of the roadway.



g. When a stretch of a road is made up of several short sections (each less than approximately 12.70 mm in length) which vary in the number of lanes of its narrowest part.

3.12.1.7 Dual lane (divided) highways.

a. Dual lane (divided) highways are hard surface, all weather roads separated by a parkway, median, or barrier between the two directions of travel. They shall be treated as described in 3.12.1.6 above. In addition, the word *DUAL* shall be added parallel to the road at fairly frequent intervals to explain the condition. The point of change symbol shall be added at points of change between dual and other multiple-lane highways.

b. Where scale permits, correct positioning of both sides of a dual highway shall be shown. Each side shall be treated as an individual unit.

3.12.1.8 Road names. Road names can be added when space permits their inclusion. The accepted names of important arterial highways shall be added parallel to the road symbol. Names should be applied to main trails in areas of sparse culture.

3.12.1.9 Route numbers. Only officially accepted route number identifications shall label the roads. Route numbers shall be shown for international, national and secondary roads. The latter include roads whose maintenance usually is under the jurisdiction of states, provinces, prefectures, and similar primary administrative political divisions. In many countries, no route number identifications are used; in others, only national routes are identified; in other regions, as in Central Europe, international routes are identified.

a. Route number symbols shall be oriented with the south or bottom neatline of the map sheet. The symbols shall usually appear centered on the roads. If this placement is impossible in areas of heavy culture, the symbol may appear adjacent to the road in a clear area.

b. Careful attention must be given to the location of the route numbers since ready identification of all roads is required.

(1) Route numbers should be added as close to the inside of the neatline as practicable on all roads intersecting the neatline.

(2) Route numbers shall be shown for all such designated roads leaving large populated areas and shall be positioned as close to the neatline as the feature will permit.

(3) Route numbers shall clearly identify roads at important junctions and intersections.

(4) On roads which cover long stretches, route numbers should be repeated at intervals sufficiently frequent to insure easy identification of the road in question.

(5) When roads are combination routes, each route number shall be shown by its own separate symbol, where practicable.

(6) Where it is impossible to include all route numbers, preference shall be given to international and national routes.

### 3.12.1.10 Road objectives.

a. The south and west borders shall include as many road objectives for major through roads as practical without sacrificing the appearance of the graphic. A profusion of objectives is both unsightly and minimizes the significance of this information. The classification of roads and the relative importance of destinations shall be the criteria in selecting objectives to be shown.

b. In areas of sparse culture, it may sometimes be feasible to show objectives for roads of lower classifications and, in some cases, even for trails; these should be held to a minimum and shown only when the feature is an important traveled way.

c. A road objective shall consist of the destination, the distance thereto, and an arrow. The distances shall always be expressed in kilometers, regardless of the native unit of measure in the area being mapped.

(1) The destination and kilometer distance shall appear on one line and be positioned as close as possible to the neatline as in Figure 3, with proper space being allowed for the grid numbers. Where possible, the labeling should be centered adjacent to the arrowhead.

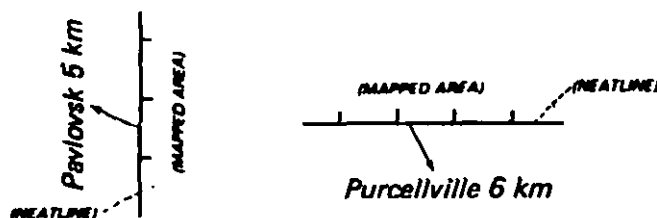


FIGURE 3. Road objective examples.

(2) If two roads have the same objective and are within a short distance apart at the neatline, an arrow shall be shown for each road and the same note, spaced to embrace both arrows, used for both roads.

d. Destinations may be either on the adjacent sheet or, where a road cuts across the corner of an adjacent sheet to an

objective on an adjoining sheet and whose corner touches the corner of the sheet being mapped.

e. Designation of destination will be as follows:

(1) The designation shall usually be the next important populated place.

(2) If a road terminated at another road which is identified by a route number, the number of the route shall be designated. The designation shall be written out; some examples:

FRANCE HY. NO. 90

VENEZUELA HY. NO. 3

f. The distance to an objective shall be given to the nearest kilometer.

(1) Kilometer and kilometers shall be abbreviated as km (lower case).

(2) In figuring distance to a town, the center of the town shall be regarded as the point of destination.

#### 3.12.1.11 Road classification.

a. All weather, hard surface roads are roads that designed to bear, as a minimum, fairly heavy military loads in all weather. Minimum maintenance requirements are periodical inspection and repair. The construction of these roads is usually concrete or bituminous macadam.

b. All weather, loose or light surface roads are roads which are designed to bear light military loads in all weather. Construction is on light foundation and is usually gravel or stone surface, or of some stable material, such as selected sand-clay, treated oil gravel, or light tar-bound macadam. The roads are generally drained and graded. Periodical maintenance is required.

c. Fair or dry weather, loose surface roads are roads which are designed to bear light military loads in fair or dry weather. The structure is usually gravel or sand-clay with poor or no foundation. The road is sometimes drained or graded. Continual maintenance is required.

1. Dirt roads. These are generally suitable only for light military loads in dry weather. They are sometimes graded but are always without surface improvement.

2. Private roads. Regardless of surface improvement, private roads shall be included within this category. Private roads are defined as those which are maintained by private or neighborhood funds and are not generally open to the public. Such roads shall generally be omitted from the map unless they lead to points of definite strategic importance.

3. Abandoned roads. When shown, abandoned roads shall be included within this category unless definite information is available that they should be upgraded or downgraded. An abandoned road is one which is no longer used by regular traffic and is no longer maintained. Generally, it is replaced by a newer road of better construction and straighter alignment. Usually, such roads shall be omitted unless they lead to points of definite strategic or landmark importance.

4. Fire roads. When fire roads are shown on the map, they will be included in this category. These are defined as roads going through wooded areas and whose entrances are generally blocked off from public travel. They shall be shown only in areas of sparse culture, provided they are of definite strategic or landmark value.

5. Lumber and Wood roads. Lumber and Wood roads shall be included within this category but shall not be shown unless they are definitely of strategic importance in the area.

6. Corduroy roads. These and similar roads shall be included within this category but shall be shown only when of definite strategic importance. The symbol shall be labeled with *CORDUROY*. Short stretches of corduroy roads shall not be labeled.

d. Cart tracts.

1. Generally, included in this category are important caravan routes, winter roads, natural roadways capable of bearing wheeled vehicles, and tracks which are jeepable, exclusive of roads.

(a) Important caravan routes shall be identified by name and designation added parallel to the symbol, for example: *GOBI CARAVAN ROUTE*.

(b) Winter roads shall be identified by the label *WINTER ROAD* added parallel to the symbol.

2. Generally, minor tracts shall be omitted. When the symbol follows the top of a levee, it shall be omitted when the levee is symbolized.

e. Footpaths, Trails.

1. Generally included in this category are important footpaths, foot trails, and pack trails. Minor trails and short connecting trails shall generally be omitted. When the symbol follows the top of a levee, it shall be omitted when the levee is symbolized.

2. In certain regions, a classification distinction between tracks and trails may not be feasible. In such

circumstances, both routes shall be represented as tracts. The Legend terminology shall be revised to read: Track or Trail.

3.12.1.12 Primary and secondary roads (classification principles).

a. A classification distinction between primary and secondary roads is required for both versions of the JOG in areas where the majority of the roads are hard surface.

1. This classification distinction is in addition to the road classification guidance given in 3.12.1.11.

2. Except for dual lane highways, this classification distinction shall be applied to hard surface roads only.

b. Primary roads are those hard surface roads which are of basic importance to the existing road network. Primary importance may be determined on a country or on a geographic regional basis, whichever is most practical.

1. The selection of primary roads shall not be influenced by the river or rail transportation system, nor the existence of dual lane highways. The most direct route is not necessarily the primary route.

2. When selecting a primary route, consideration shall be given to such factors as: current usage, continuity, capacity, width, and objectives incurred along the route or at its terminus.

3.12.1.13 Road interchanges (cloverleaf's) on limited-access roads.

a. A limited-access road is an express highway (e.g., the Autobahn or the Pennsylvania Turnpike) which is independent of the general road system and to which entrance and departure are restricted to certain (limited) access points (cloverleaf's or the like). These access points are identified as road interchanges in these specifications.

b. In addition to being essential for planning vehicular movement, road interchanges along limited-access highways are excellent points of reference for air users. In view of their importance, limited-access points (Cloverleaf's, etc.) shall be plotted as accurately as the map scale permits.

3.12.1.14 Kilometric distances (1501-Ground only).

a. Distances between selected populated places, road intersections, road and railroad intersections, shall be shown. Distances shall be expressed in terms of kilometers, regardless of the native unit of measure in the area being mapped. The number of distances to be shown is dependent on the cultural development of the area under consideration.

b. In well-developed areas, distances are shown along the major road network or roads of higher classification:

- (1) Between outlined built-up areas.
- (2) Between important populated places (as determined from the population or importance breakdown).
- (3) To intersections of roads of higher classification.

c. In areas of sparse cultural development, distances are shown along all roads (including tracks and trails) which link populated places:

- (1) Between populated places.
- (2) To intersections of routes.
- (3) To landmark features.

d. Distances less than 5 kilometers shall not be shown. Distances shall be computed to the nearest full unit; fractional units shall not be shown. The distance is centered between terminal points. Terminal point indicators may be positioned at road intersections within built-up area outlines.

e. When the terminal point of a distance falls on an adjoining map sheet, the total distance to the terminal point on the adjoining map sheet shall be shown approximately 2.5 mm from the neatline. This distance shall also be shown inside the neatline of the adjoining map sheet.

f. If a road crosses a neatline and returns to the same map sheet before reaching the selected terminal point, the distance measured along the entire road between terminal points shall be shown. The distance shall be positioned inside the neatline, close to the points of departure and return of the road.

g. The margin shall include the following note which is to be shown in the printing color of the primary road network:

Figures along roads indicate approximate distances in kilometers.

### 3.12.2 Railroads.

#### 3.12.2.1 Railroads: General.

a. A railroad is any type of reasonably permanent road or way having rails which provide a track for trains of rolling stock, either passenger or freight. Railroads laid on ties with some attempt at grading, such as logging railroads, normally shall be regarded as permanent for mapping purposes. Railroads of a portable type, such as those sometimes used in canefields or as

spurs at a strip mine, shall be regarded as temporary and omitted from the map.

b. Main line is a track which is part of a continuous transportation net.

c. Branch line is a feeder track off the main line.

d. Spur tracks are tracks other than a main or branch track, intended for passing, storage, and the loading or unloading of passengers or freight. Sidings are included in this category.

e. The gauge of tracks is based on the width as measured between the heads of the rails at right angles thereto and at a point 15.90 mm below the top of the rail.

f. A normal gauge railroad is the gauge that is used on the majority of the main line railroads of a country.

g. Broad gauge railroads are those which the gauge is greater than the normal gauge used in a country.

h. Narrow gauge railroads are those which are less than the normal gauge used in a country.

i. Standard gauge is 1.44 meters.

j. Single track railroads are one track used by trains traveling in either direction.

k. Double track railroads are two parallel tracks of the same line, designed to carry trains in opposite directions.

l. Multiple tracks are three or more parallel tracks of the same railroad.

m. An operating railroad is one which is in regular use.

n. Non operating railroads are those railroads not in use. Included in this category are railroads under construction, abandoned railroads, and destroyed railroads.

(1) An under construction railroad is a new line or track upon which actual construction work has been started.

(2) An abandoned railroad is a non operating railroad whose ballast, tracks, and bridges remain in place entirely, or in major part, and which could with a reasonable minimum of repair, be put into at least limited use.

(3) Destroyed railroads are those which are destroyed in part, either as the result of military operations or of natural catastrophe, but whose ballast, tracks, and bridges remain in place entirely or, in major part, and which could with a

reasonable minimum repair, be put into at least limited use. The distinction between abandoned and destroyed railroads is that abandoned railroads will probably be repaired and put into operation.

o. Dismantled railroads are those no longer in use and which have had the major part of their tracks and bridges removed. Often, the only visible evidence is a more or less clear right-of-way.

p. Railroads in juxtaposition. Two railroads of different ownership which run closely parallel to one another and generally, are on the same right-of-way.

3.12.2.2 Railroad selection. A distinction shall be made between railroads as to gauge, number of tracks, and whether they are in use or not.

a. All main line railroads shall be shown.

b. Branch lines and spur tracks of less than 5.10 mm shall be omitted unless they terminate at a symbolized populated place or exist in an area of sparse culture.

c. A distinction shall be made between railroads as to:

(1) Gauge.

(2) Number of tracks.

(3) Whether they are in use or not.

d. Railroads within populated places shall be treated the same as railroads in open country.

3.12.2.3 Railroad gauge.

a. Gauge classification shall be fixed on a country-by-country basis and not a sheet basis. Thus, it will be possible to have a sheet containing portions of more than one country which shows a 1.44 meter (4 ft 8-1/2 in) railroad as normal gauge in one country and which shows the same railroad in another country as narrow gauge.

b. No distinction shall be made in basic symbolization between normal and broad gauge railroads, except for the addition of the "broad" label. All gauges must be indicated on the graphic and shall be based on the majority of the common carrier railroads in the country.

(1) If all the main and branch line railroads shown by a common symbol are of the same gauge, a note shall be added in



the margin of the graphic to that effect, together with a notation of the gauge measurement; for example:

All railroads except narrow gauge railroads are 1.44 meters.

(2) If the gauges vary, they shall be included either by labeling added parallel to individual lines or by a marginal note if the latter means is sufficiently comprehensive. An example of a marginal note in such cases would be:

With the exception of narrow gauge railroads, all railroads in Russia and the Commonwealth of Independent States are 1.52 meter gauge and those in Poland are 1.44 meter gauge.

c. Where the gauge measurement of all narrow gauge railroads on the sheet is the same, an appropriate note shall be added in the margin of the graphic; for example:

All narrow gauge railroads are 1-meter gauge.

d. When a narrow gauge railroad occurs on the same roadbed with a broad or normal gauge railroad, only the wider gauge railroad shall be symbolized. The narrow gauge railroad shall be shown entering and leaving the wider gauge railroad. If the coincidence occurs over a long stretch, labeling (properly identifying the gauge measurement of the narrow gauge railroad) shall be added parallel to the symbol, reading for example:

1-meter gauge railroad on same roadbed.

e. The point of change in gauge of railroads shall be indicated. The gauge identifications shall be added adjacent to the symbol parallel to the railroad symbol.

#### 3.12.2.4 Railroad tracks.

a. A distinction in symbolization is to be made between single-track railroads and those of more track (double and multiple track).

b. Where the number of tracks of a railroad exceeds two, the information shall be shown by labeling added parallel to the railroad symbol at appropriate intervals.

c. The point of change in number of tracks of a multiple-track line shall be indicated.

d. Sidings which are closely parallel to a main line shall, if shown, be symbolized as sidings and shall not be counted in determining double-track or multiple-track lines.

### 3.12.2.5 Non operating railroads.

a. No distinction in symbolization shall be made between types of non-operating railroads. Distinction, however, shall be maintained by adding appropriate labeling, parallel to the railroad symbol as follows:

#### ABANDONED    DESTROYED    CONSTRUCTION

b. A proposed line does not come within the meaning of the definition of railroads under construction and shall not be shown.

c. Any part of a destroyed railroad under repair, or of a railroad under construction which is sufficiently finished to be in use, shall be regarded as in operation.

d. Operational railroads will include those which are nearly complete though under construction or repair.

e. Lines undergoing repairs which make the railroad inoperative for a short time shall not be regarded as under construction and shall receive their usual symbolization.

f. Cases will be encountered where an operating line will have an additional track or tracks under construction. The feature shall be shown by the appropriate symbol for the operation line with appropriate labeling indicating the trackage under construction added to the symbol; for example:

Additional track under construction

Two additional tracks under construction

### 3.12.2.6 Dismantled railroads.

a. If the right-of way of a dismantled railroad is being used as a road, it shall be symbolized by the proper road symbol.

b. If there is no road and the feature is of sufficient prominence and importance to serve as a landmark, it shall be symbolized by the trail symbol. If space permits, labeling shall be added parallel to the trail symbol reading: Dismantled railroad

### 3.12.2.7 Spur track and sidings.

a. Spur tracks and sidings shall be shown only when they have some particular significance, such as landmark value, or terminate at a symbolized place. In sparsely settled areas, sidings are landmarks, often named, and should be shown wherever possible.

b. Where sidings are short, the crossties may be omitted and, if necessary, the sidings may be slightly exaggerated.

c. Spur tracks and sidings shall be shown as entering the main line in a smooth curve.

d. When the distance between the main line track symbol and a parallel siding symbol is too small to portray, the siding may be displaced .25 mm from the main track.

3.12.2.8 Railroads in juxtaposition. When two railroads are in juxtaposition, each shall receive its normal symbolization, but the condition shall be emphasized by staggering the crossties of the parallel symbols.

3.12.2.9 Electrified railroads. Electrified railroads are identified by unique symbol where two dots are positioned over the top of the crosstie, each successive pair placed over alternating crossties.

3.12.2.10 Railroads within populated places. Railroads within populated places shall be treated and symbolized the same as railroads in open country.

3.12.2.11 Railroad names.

a. The words "Railroad, Railway, Company, Line, System", and similar terms and abbreviations of these terms shall not be included with a name unless the term is a necessary part of the name, as in the case of *Central Railroad of New Jersey*.

b. When names are shown, they shall not be abbreviated except in very congested areas where it is impossible to carry the full name. In such cases, only official abbreviations shall be used.

3.12.2.12 Related features.

a. Treatments for bridges, viaducts, causeways, grade crossings, overpasses, and underpasses are prescribed in 3.12.13.1.

b. Treatments for cuts, fills, and levees are contained in 3.14.8.

3.12.3 Railroad stations.

a. Railroad stations shall be shown in areas of sparse culture. If a railroad station appears with a group of buildings, the buildings and station shall be indicated by the proper populated place symbol. In areas where railroads are the principal means of transportation, railroad stations assume greater importance and, consequently, more shall be shown; in these areas, railroad stations may be shown in developed areas.

b. When information is available, an isolated or remote railroad station shall be located in its correct position relative to the railroad track. A slight exaggeration in scale is permissible to achieve this.

c. When the exact location of a railroad station is unknown, it shall be symbolized with the unknown station symbol, placing the symbol straddling the railroad track, at the approximate location.

d. Flagstops, halts, and similar stops without buildings shall not be shown.

#### 3.12.4 Interurban car lines.

a. Selection of Interurban car lines. Interurban car lines, whether or not in operation, shall be shown when they serve as landmarks in open areas or if they are important to the integrated communications system of an area. All of the same criterion as specified for railroads applies to Interurban car lines.

b. Gauge and tracks. No distinction shall be made between interurban car lines as to gauge or number of tracks; all shall be symbolized alike.

c. Non-operating car lines.

(1) A proposed car line does not come within the meaning of the definition of car lines under construction, and shall not be shown.

(2) If the work on a car line under construction or on a destroyed car line under repair is nearly complete and it is probable that it will be completed by the time the map is published, or within a reasonable time thereafter, the feature shall be symbolized as a line in operation.

(3) Lines undergoing repairs which make the car line temporarily inoperative shall not be regarded as under construction and shall receive their usual symbolization.

d. Dismantled car line. The same criterion as railroad applies to dismantled except for the label for this condition reads as follows: Dismantled car line

e. Car line stops or stations are omitted from the map.

3.12.5 Railroad yards. Railroad yards (freight, marshaling, etc.) shall be shown. The correct shape of the yards shall be retained insofar as practicable. No attempt shall be made to show all tracks.

3.12.6 Railroad snowsheds. Railroad snowsheds provide excellent landmarks and shall be shown wherever they exist.

3.12.7 Aerial cables, ski lifts, conveyor belts, and similar features. Included in this category are linear features other than railroads or car lines whose functions is the transportation of people or material. Usually, these features are suspended above the ground level. The importance of these features, in addition to landmark value, is their potential hazard to aircraft operations.

3.12.8 Questionable alignments of railroads and similar features. Special treatments are required when railroads, interurban car lines, aerial cableways, or similar feature alignments are less reliable than the plotted positions of other cultural features within the area. The point of change in accuracy of alignment shall be indicated as shown in Figure 4.

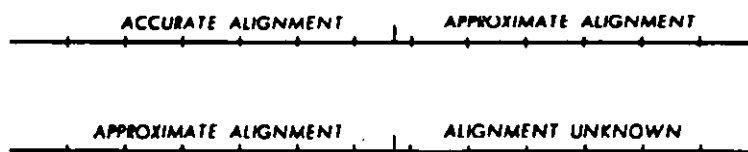


FIGURE 4. Railroad point of change for alignment.

### 3.12.9 Populated places.

a. Populated places are portrayed to meet both ground and air operational requirements. In addition to facilitating the rapid determination of size, shape, and through-passage capacities, they also convey the nature of the area from the viewpoint of cultural development.

b. The term populated place is interpreted to include: cities, towns, villages, settlements, industrial and military areas, resort areas, and communal farms. Populated places may vary in size from an extensive megalopolis to a small hamlet. The term applies to developed areas where more than one family or family group lives as a community and does not apply to individual farms, homesteads, or dwellings.

3.12.9.1 Density requirements and selection criteria. The general requirement is to show all populated places; however, in densely populated areas, it will not always be possible to do this and still produce a legible product. In such cases, the optimum amount is shown; some of the smaller, less important places must be omitted by hierarchical order to retain a balance with other more important map detail. When populated places are so dense

that some have to be omitted, the selection is based on the following:

- a. The populated places which are to be symbolized by an outline are always retained.
- b. Populated places which are classified in the higher categories (based on either population or importance) are given preference over those in the lower categories.
- c. Larger populated places are selected over smaller ones of the same classification.
- d. Populated places along the primary routes of communication are given preference over those along adjacent secondary roads.
- e. Populated places located at road junctions are given preference over adjacent ones of a similar size not at road junctions.

#### 3.12.9.2 Portrayal of populated places.

- a. The determination of the limits for the built-up area depends on the source material and the cartographers judgment. Any openings (clear areas) within the outline shall be shown when the minimum clearing size is 2.5 mm by 2.5 mm.
- b. The outline should include all buildings that are part of the contiguous pattern. Outlying scattered buildings shall not be included within the outline, and unless they are landmarks they shall not be symbolized.
- c. Suburbs and other concentrated building developments shall be treated as individual populated places and symbolized by built-up outlines or town circles, as applicable.
- d. The limits of the built-up area bear no relationship to political or administrative boundaries.
- e. The distinguishing characteristics of the street pattern should be shown within the populated place outline.
- f. Narrow strips of development, such as a single row of buildings extending along each side of a road, are not included within the populated place outline.
- g. When two or more populated place outlines merge, they shall be enclosed in a common outline; the dividing lines are omitted.

h. Town circles shall be used for those populated places which do not meet the requirements for the populated place outline.

(1) Populated places indicated on map sources are to be portrayed when populated places do not meet the area size requirements of an outlined area.

(2) Developments made up of single row of buildings strung out on one or both sides of a route of communication (to include streams and canals) are shown by this symbol and not as a

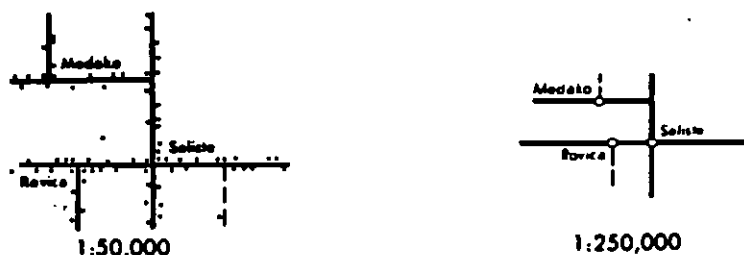


FIGURE 5. Placement of town circles.

built-up area outline. The circle is positioned over, whenever possible, at the center of the village as shown in Figure 5 and preferably at the junction of the routes of communication.

(3) The relationship between symbolized populated places and transportation routes shall be maintained. Thus, a town circle will not necessarily be positioned along the nearest transportation route or intersection.

3.12.9.3 Classification of populated places. The relative importance of populated places shall be determined from a regional aspect. Symbolized populated places shall be classified in accordance with five categories which are to be determined as follows:

a. When complete and up-to-date population figures are available, they shall serve as the basis of the five categories. The detailed division into categories by population shall vary from region to region.

b. The breakdown of populated places arrived at on such a population basis shall always be scrutinized with a view to upgrading those that have enhanced importance by reason of being administrative centers, junction of important roads, rail centers, or of having any other significant value to the military user.

c. When population figures are not available, are incomplete, or are significantly out-of-date, the size of symbolization on source material shall be taken as a guide to producing a basic classification, but the provisions of 3.12.9.3.b above shall then be given paramount importance.

d. The classification of populated places shall be shown on the graphic by appropriate type and style. When a map contains only towns of fifth importance or less, a note shall be added to the margin in the notes column to read: All towns are fifth class or lower.

e. An example of population breakdown and the relative importance breakdown equivalent in a culturally developed area would be:

1st Class - more than 500,000	or 1st importance.
2nd Class - 50,000 to 500,000	or 2nd importance.
3rd Class - 10,000 to less than 50,000	or 3rd importance.
4th Class - 5,000 to less than 10,000	or 4th importance.
5th Class - less than 5,000	or 5th importance.

f. An example of population breakdown and the relative importance breakdown equivalent in a area not yet well developed culturally would be:

1st Class - more than 500,000	or 1st importance.
2nd Class - 50,000 to 500,000	or 2nd importance.
3rd Class - 10,000 to less than 50,000	or 3rd importance.
4th Class - 2,000 to less than 10,000	or 4th importance.
5th Class - less than 2,000	or 5th importance.

3.12.9.4 Populated place names. Names of populated places of fifth importance shall be included on the 1501 JOG AIR product, except where they conflict with the display of aeronautical information or otherwise clutter the chart. In areas of chart clutter, names of populated places of fifth importance shall be thinned only after attempted repositioning of the name can not result in chart clarity.

#### 3.12.10 Walled cities.

a. Walls surrounding cities or parts of cities which are symbolized by an outline (built-up area outline) and shall be indicated by a heavy line (wall symbol) with the word (walled) added in parentheses below the place name.

b. When a wall coincides with the limiting outline of a developed area, only the wall symbol shall be shown.

c. Walls occurring within or around populated places which are not symbolized by an outline shall not be symbolized; it will



be sufficient to add the word (walled) in parentheses below the place name.

3.12.11 Continuous habitation areas. Continuous habitation areas include widespread areas of huts and native settlements with poorly defined limits.

a. The outline shall contain a color tint which is a 21 percent screen of the color fill specified for an outlined built-up area.

b. The feature shall be represented by a black outline which defines its limits.

c. Within larger outlines, through routes shall be shown in the same manner specified for outlined built-up areas.

d. Through routes shall be shown within the outlined areas. They will be shown in the same manner as outlined built-up areas.

e. Street patterns shall be shown, when feasible.

3.12.12 Ruined or destroyed populated places.

a. Ruined, destroyed, and partially destroyed populated places shall not receive any special symbolization; The limits or extent of ruin or destruction shall not be indicated. Such places shall be depicted, when practical, as they existed prior to destruction, and shall be routinely symbolized.

b. The symbolized places shall be augmented by explanatory labeling enclosed in parentheses; the preferred labeling shall be positioned below the place name, as: (Ruined), (Destroyed), (Partially destroyed), etc. The term "Partially destroyed" shall be interpreted to mean destruction which comprises less than 75 percent of the developed area.

c. If rehabilitation or reconstruction is evident, the explanatory labeling is omitted.

3.12.13 Miscellaneous cultural features. The term cultural features as used in this section refers to those features on the terrain which are the result of the work of man. Excepted are populated places, roads, railroads and related features.

3.12.13.1 Bridges, viaducts, causeways.

3.12.13.1.1 Items to be portrayed. All bridges that the scale will permit shall be shown, except in those cases where the showing of bridges would result in the elimination of a more important feature.

3.12.13.1.2 Bridge delineation.

a. Because most bridge symbols are truly symbolic, exaggeration of length is usually necessary (and permissible) in order to properly accentuate the feature.

b. Where the true length of a bridge is unknown, exaggeration may be required to portray bridges crossing globulin streams and open water areas.

c. Viaducts are to be delineated in the same manner as bridges.

d. No shorelines shall be added along the causeway to augment the symbol, unless the distance between the two shorelines, when plotted to scale, exceeds the width of the road or railroad symbols.

3.12.13.2 Overpasses, underpasses, grade crossings.  
Overpasses and underpasses shall be shown wherever possible.

3.12.13.2.1 Overpass, underpass, grade crossing delineation.

a. For purposes of symbolization a bridge symbol shall be placed on the overpassing feature.

b. In instances where crossings occur at more than two levels, they shall be symbolized accordingly, adhering to the above principles.

c. No special treatments are required for grade crossings. The symbol for each crossing feature shall be continued unbroken across the symbol for the other.

3.12.13.3 Tunnels. Tunnels for highways and railroads shall be shown wherever they exist. Tunnels less than minimum length at map scale shall be exaggerated.

3.12.13.4 Ferries.

a. Ferries capable of accommodating vehicular or railroad traffic shall be shown in all instances.

b. A ferry shall be regarded as such only where it is an established feature regularly in operation for transporting traffic between two points on opposite sides of a stream, river, bay, sound or lake. The landings need not necessarily be directly opposite one another.

c. When steamship routes along coasts, in bays, and up rivers are the main routes of communication, they shall be regarded as ferries.

3.12.13.5 Fords. Fords for roads shall be shown wherever they exist.

3.12.13.6 Mining features.

a. Strip mines and quarries shall be treated as directed in 3.14.8.16.

b. No distinction in symbolization shall be made between vertical shafts and mine tunnels. Both shall be commonly symbolized. If information is available, the nature of the mineral mined shall be indicated by labeling adjacent to the symbol.

3.12.13.7 Wells.

a. Wells drilled for gas, oil, or minerals shall be shown if they are in operation and of landmark importance in areas of sparse culture.

b. Abandoned wells shall be shown only when sufficient installations remain to make the feature a landmark.

c. Wells drilled or dug for water shall be treated as directed in 3.13.16.

3.12.13.8 Tanks.

a. Tanks used for the storage of oil, gas, water or other liquids shall be shown wherever they exist as landmarks in areas of sparse culture. They shall also be shown in other areas where their portrayal does not conflict with the portrayal of other cultural features.

b. Open reservoirs, used for the storage of asphalt, oil, or other liquids except water, shall be shown if of landmark nature.

3.12.13.9 Oil or gas pipelines. Pipelines for gas, oil, and similar liquids, whether above or below ground, shall be shown only when they serve as landmarks in areas of sparse or moderate culture.

a. Only those pipelines which are obvious on aerial photographs, obvious from inspection on the ground, or which are clearly defined on source maps shall be shown. Underground pipelines may be obvious from cleared right-of-ways, ground scars, or levee-like mounds.

b. No effort shall be made to show pipelines as continuous features only landmark portions shall be shown.

3.12.13.10 Dams. No distinction in symbolization shall be made between masonry dams and earthen dams or dams constructed of other materials.

3.12.13.11 Harbor structures.

a. Piers, breakwaters, jetties, and similar features which project into the open water area from the shoreline shall be shown. The linear shape of the feature shall be retained insofar as possible.

b. The extent of man-made shorelines, especially seawalls and extensions of harbor facilities, shall be indicated and labeled appropriately. Included in this category are seawalls, revetments, ramps, and similar features. The linear shape of the feature shall be retained insofar as possible.

3.12.13.12 Power transmission, telephone, and telegraph lines.

a. Powerlines are shown as continuous cultural features, regardless of their landmark significance.

b. Show all power transmission lines regardless of the height.

c. Power transmission line towers 46 meters and greater are shown as an obstruction.

d. Telephone and telegraph lines shall be considered landmark if they are conspicuous because of height, cleared right-of-way, location, or the sparsity of other cultural features in the vicinity. Examples would be as follows:

(1) a single-line telephone/telegraph line running for a long distance across grazing or other open country.

(2) a telephone line not parallel to a road or trail but running through mountainous country.

(3) telephone and telegraph lines across valleys canyons.

e. No distinction shall be made between telephone and telegraph lines. A generic label Tel shall be applied above and parallel to the feature.

f. Telephone and telegraph lines shall be broken for all populated places.

3.12.13.13 Prominent walls and fences of landmark importance.

a. Generally, walls and fences are not shown unless they are of landmark value.

b. Examples would be the Great Wall of China, or certain portions of the very long rabbit fences in Australia.

3.12.13.14 Control points.

a. A sufficient number of horizontal control points or astronomic positions shall be selected for symbolization to indicate the basic pattern. The control pattern is intended both to reflect the reliability of the graphic and to be a source of precise information.

b. No control is to be symbolized if, when plotted according to the grid, its description, on a reasonable inference about its position, is incompatible with the surrounding detail.

3.12.13.15 Landmark features. Landmarks may be natural features or man-made objects. A landmark serves as a means of positive and rapid orientation because of its unique size, shape, and/or location in contrast to adjacent reference points or linear features.

a. Landmarks are always identified by explanatory labeling unless they are represented by characteristic symbols.

b. Man-made landmarks may be obstructions or non-obstructions. Obstructions are shown wherever they exist (see 3.17.7).

c. The need for landmarks is directly related to the cultural development of an area. In areas of dense or, in some cases, moderate development, there is little need for landmarks because there are enough points of reference, such as populated places, road junctions, railroads, powerlines, etc. In areas of very sparse development, an isolated ranger station may have landmark value because of the absence of other points of reference or orientation. The representation of landmarks is affected by the following considerations.

(1) In areas of sparse cultural development, landmarks that can be seen from afar, particularly those that can be seen from the main routes of communication, are considered good orientation and reference points.

(2) Where there are many similar features of a type normally considered as landmark, none would be shown unless one of the features is more conspicuous than the rest. For example, in an area where there are many churches, they would lose their

significance as landmarks and none would be shown. However, if one of the churches was remarkable in appearance, and conspicuously distinguished from the others, it would be shown.

d. The existence of a feature usually considered as a landmark does not automatically make it a landmark. The feature must meet at least one of the criteria for landmarks, which are: isolated location; uniqueness; or consciousness due to height, size, or shape. Examples of features which may be landmarks provided they meet the above criteria are: forts, castles, factory complexes, chimneys, historical ruins, race tracks, stadiums, towers, cairns, and lighthouses. Lighthouses are shown for their landmark value, regardless of whether or not they are operational.

(1) Structures sufficiently large to plot to scale are shown by correct shape.

(2) Forts, of landmark importance, but too small to plot to scale, shall be shown by symbol-graphic. Other fortifications of sufficiently substantial construction to constitute reasonable permanent landmarks (exposed fortified walls, tank traps, etc.) shall be shown.

(3) Other landmark features shall be appropriately treated as directed in previous paragraphs.

e. Cases exist in regions of sparse culture where an area is so different in nature or appearance from the surrounding terrain that it serves as an outstanding landmark. Examples might be: areas of stunted growth in deserts; areas of dark soil surrounded extensively by light soil, or vice versa; cultivated areas centered in extensive uncultivated-cultivated areas. It is emphasized that the above-described treatment shall be applied only when the area serves as an outstanding landmark.

### 3.13 Hydrography.

#### 3.13.1 Hydrography: General.

a. The term "drainage" includes those natural or man-made features, of which water is a constituent part and which fall within the landslide limits of the mean high water shoreline. The amount of water varies with the feature. It may be considerable as in flowing streams, lakes and aqueducts; it may be moderate as in marshes, intermittent streams, and irrigation ditches; or the presence may be a temporary condition as in washes and areas subject to inundation. The features may be perennial, intermittent, or dry. A feature is perennial if it contains water during the major portion of the year; it is intermittent if it contains water only a minor portion of the year. The major portion of the year is interpreted as being 6 months or more.

b. Areas will be encountered containing similar features that are either too numerous or too small to show to scale. Wells, springs, and pinpoint lakes/ponds fall in this category. No attempt should be made to show all the features; instead, a representative pattern of the symbols shall be added to cover the area, augmented where appropriate by an explanatory note as: Numerous small ponds, Hot springs, etc. Where necessary for clarity only, the symbols for the small lakes/ponds may be exaggerated slightly in size; the shape and orientation shall not be exaggerated.

c. No special symbol shall be required for streams, lakes, and ponds which are frozen or partially filled with ice.

3.13.2 Shorelines. A distinction shall be made between definite shorelines and indefinite or unsurveyed shorelines.

3.13.3 Open water.

a. Open water is defined as the limits (shorelines) of all coastal features at mean high water for oceans, seas, and associated waters such as bays, gulfs, sounds, fjords, large estuaries, etc.

b. Inland open water is defined as all other bodies of open water.

3.13.4 Lakes, ponds, reservoirs.

3.13.4.1 Perennial lakes and ponds.

a. The shoreline of a perennial lake or pond shall be mapped to correspond to the normal stage of water as evidenced by reliable source data. This may differ from shorelines appearing on aerial photography which may be flown during periods of flood or drought. The shoreline of the normal stage is usually marked by a line of permanent land vegetation.

b. Where marsh or other vegetation grows down to and into an inland body of water (non-tidal), it is sometimes difficult or impossible to establish the actual shoreline. In such cases, the shoreline shall be delineated as unsurveyed.

c. Wherever there is danger of misinterpretation, a tint shall be added within the area of the feature. To avoid confusion with split streams, this tint must be applied to small bodies of water occurring along single-line streams.

3.13.4.2 Dry and intermittent lakes and ponds.

a. Shorelines of dry and intermittent lakes/ponds shall be shown as indefinite.

b. Lakes and ponds which are permanently drained under land reclamation projects shall not be treated as dry lakes; instead, they shall be treated similarly to depressions or other relief formations.

#### 3.13.4.3 Salt lakes.

a. A salt lake is one in which the water is brackish. It may be perennial or intermittent and usually occurs in a depression having no outlet.

b. A salt lake shall be mapped the same as any other lake except that it shall be labeled Salt.

3.13.4.4 Small lakes not plottable to scale. In areas containing numerous lakes or ponds which are too small to plot to scale, it shall be permissible to exaggerate a sufficient number to show by correct symbol a representative pattern for the area. The area shall be appropriately labeled, as: Numerous lakes, Numerous ponds, Numerous dry lakes, etc.

#### 3.13.4.5 Reservoirs.

a. The shoreline shall be the line that represents the water surface at the normal stage of the lake as controlled by the spillway of the dam.

b. Areas surrounding the reservoir, flooded by the use of movable dam crests or flash boards, shall be regarded as land subject to inundation.

#### 3.13.5 Streams.

##### 3.13.5.1 Perennial streams.

a. At 1:250,000 scale, streams must be immediately obvious when the JOG is used operationally. Additionally, of particular concern are rugged or mountainous areas where the visibility of the streams is overshadowed by a dense pattern of contours, vegetation, shaded relief, and elevation tints.

b. Many streams are subject to extreme fluctuations in flow, depending upon the season. At normal flow, the streams are small and follow channels of various patterns through the wider river-bed. The channel may be straight, meandering, or braided. During periods of flood, the channels are submerged and the riverbed is often filled. Usually, the banks of the riverbed are subject to little apparent change. The normal channels, however, are often drastically changed in alignment when the flood waters abate. This is especially true with meandering and braided streams.

(1) The riverbed outline is plotted to represent the alignment of the river banks.



(2) The normal channels of streams within the riverbed shall be symbolized as directed in 3.13.5.1.b.

#### 3.13.5.2 Intermittent and dry streams.

a. No distinction shall be made between single-line intermittent and dry streams.

b. The banks of the feature shall be delineated as representing the limits of the river bed at flood.

c. Any permanent channel shall be shown (within the limits of the outline) by the appropriate perennial or intermittent symbol.

#### 3.13.5.3 Disappearing streams.

a. Many streams in limestone and lava regions sink underground and continue their course in subterranean channels.

b. A stream sometimes disappears by seeping into the ground without continuing underground as a stream. This condition is common in sandy areas of arid and semiarid countries. The portion of such a stream which is marked by a definite channel shall be shown by the appropriate perennial or intermittent symbol.

3.13.5.4 Deltas. In mapping deltas, all globulin and main-flow distributaries are shown.

3.13.6 Falls, rapids. Falls and rapids which are of landmark value shall be shown.

3.13.7 Navigable canals. A navigable canal is one that is used by commercial craft operating in that specific area. Canalized streams shall be considered as canals.

a. Locks, gates and similar appurtenances shall be mapped.

b. Proper names of canals shall be shown wherever feasible.

3.13.8 Conduits. Conduits include aqueducts, pipelines, irrigation ditches and canals, drainage ditches and canals, flumes, penstocks, and similar features.

##### 3.13.8.1 Aqueducts and pipelines.

a. An aqueduct may either be opened or closed, and may occur on, above, or below the ground.

b. Aqueducts and pipelines shall be symbolized alike. Only the important trunk lines shall be shown. Small feeder lines to houses or small villages are omitted.

c. Aqueduct tunnels and tunnel outlets or shafts shall be specially symbolized.

d. It is common practice to build an aqueduct on or near the surface of the ground and to cover the structure with an earth fill which resembles a levee in cross-section. The levee-like feature shall not be indicated unless it can be shown by contours.

3.13.8.2 Ditches and canals (irrigation or drainage).

a. No distinction in symbolization shall be made between drainage and irrigation ditches and canals. These features shall be shown as perennial.

b. The graphic shall portray as complete a pattern of main ditches and canals in an area as possible, omitting the secondary ditches when not required to show the character of the area.

3.13.8.3 Flumes, penstocks, and similar features.

a. Flumes, penstocks, and similar features shall be shown.

b. Generally, the major portion of extent is elevated on a trestle over changes in ground level.

c. Penstocks may occur on, above, or below the ground, and usually occur in groups paralleling each other.

d. A distinction in symbolization shall be made between features above and below the ground.

3.13.9 Artificial bodies of water.

a. Sewage disposal beds, filtration beds, fish ponds, and salt evaporators are portrayed.

b. The graphic shall portray only those artificial bodies which are sufficiently large enough to show without exaggeration of scale.

c. The outline and major separations of the features shall be drawn to scale.

3.13.10 Marshes, swamps, coastal marsh. Marsh and swamp are land areas which are normally so saturated with water that they are not suitable for cultivation without first being drained. (In these specifications, marsh and swamp are synonymous.) Usually the area is covered with characteristic grass and reed growths, however, the absence of this vegetation does not necessarily preclude classifying a normally boggy area as a marsh. Coastal

marsh is an area occurring in the foreshore area of tidal waters which is covered with characteristic thick grass and reed growths. Low or scattered sea-grass growth occurring in the foreshore area which cannot be regarded as coastal marsh shall be regarded as foreshore flats.

a. No distinction shall be made between fresh and salt marshes.

b. Land subject to inundation shall not be regarded as marsh-land.

c. Streams entering swamps sometimes divide into numerous definite channels; these shall be shown wherever possible.

d. Marshes occurring within the limits of inland bodies of water shall be shown by the marsh symbol. (See 3.13.2 for treatment of shorelines.)

e. Coastal marsh occurs in tidal waters and differs from ordinary marsh in that it covers and uncovers with tide. Coastal marsh shall be regarded as a land feature rather than as a water feature, even though it physically falls within the foreshore area. It shall be treated as an ordinary marsh with the shoreline, delineated as definite, defining its seaside limits. No other shorelines shall be shown in connection with coastal marsh. Coastal marshes are often traversed by a network of tidal channels.

f. Peat cuttings are indicated by outline within the swamp.

3.13.11 Mangrove. Mangrove is a thick impenetrable growth of trees with aerial roots found only in salt water swamps, in tropical and semitropical country. It occurs on flat areas along seacoast and rivers to the limits of the tide. Mangrove usually appears darker than adjacent dry land vegetation. Its appearance is fine in texture, with the uniform height of the trees giving a flat even appearance.

3.13.12 Nipa. Nipa is a species of palm growing in tide water estuaries, tidal rivers, or in places flooded with brackish water. It is usually found further upstream or further inland than mangrove and generally forms narrow strips in the inland portions of water channels through which tides ebb and flow. Nipa appears lighter in tone than mangrove. A speckled (salt and pepper) appearance is presented since light is well reflected from the tips of the feather-like fronds.

3.13.13 Cranberry bogs. Cranberry bogs are normally surrounded and subdivided by drainage ditches or small levees which give a definite character to each bog. The outline and major separations shall be retained, preserving the characteristic pattern of the feature. Minor separations may be added compatible

with the scale. No distinction in symbolization shall be made between the small levees and ditches.

3.13.14 Rice fields. Rice fields which are subject to inundation's, either controlled or natural, are shown.

- a. Minor levees in or around rice fields are omitted.
- b. Terraced ricefields shall be portrayed.

3.13.15 Land subject to inundation. This feature shall be symbolized only where the flood condition exists for a material period to time and the limits of flood are fairly constant year after year.

a. Flood control involves controlled inundation of special areas surrounded by levees and of reservoirs which are normally empty or partially filled. Fluctuation of the water level has bearing on the normal pool level and the possible inundation level. Any permanent pool shall be symbolized as a reservoir. The maximum area subject to controlled inundation shall be outlined.

b. Where a dam is under construction and the height of the spillway of the dam is known, the backup area shall be shown as land subject to inundation. The limits of the area shall coincide with shoreline of the filled reservoir at its normal stage as controlled by the spillway of the dam.

3.13.16 Springs, wells, water holes.

a. The importance of representing springs, wells, and water holes on the map is dependent on their relative usefulness as a part of the water resources.

b. They shall be shown in arid areas; here they are of vital importance. The name by which each feature is known should be indicated, wherever feasible. If the feature is intermittent, mineral, alkaline, or undrinkable, it should be appropriately labeled. Hot springs, geysers, and artesian well should also be labeled.

c. In well-watered areas, springs, water holes, and wells may be omitted, but conspicuous ones shall be shown in areas which are sparse in culture.

d. Walled-in springs, water holes, underground water tanks, and cisterns shall be symbolized as wells.

e. The tail of the spring symbol shall run (point) downhill from the feature.

3.13.17 Water tanks.

a. Water tanks have the same importance to the map user as springs and wells. In addition, they generally present good landmarks.

b. Water tanks include elevated tanks, water towers, standpipes, surge tanks, cisterns (above ground), and similar features.

c. In areas where fresh water features abound, water tanks shall be shown only when they assume landmark importance.

d. Water tanks and cisterns below ground shall be regarded as wells and treated as prescribed in 3.13.16.

e. When more than one tank exists in the same vicinity, as many as possible shall be shown by individual symbols in their true positions. If there are too many to show without creating area distortion, some of the symbols may be eliminated but the general shape of the tank pattern shall be retained.

3.13.18 Desert areas. Drainage features assume unusual importance in desert areas. Some features rarely contain water but due to their characteristic appearance serve as outstanding landmarks. Some features are more apt to contain water than others; these are accentuated since water supply is extremely important in such areas. The following is a brief summary of features most likely to be encountered.

3.13.18.1 Wadis. Wadis (dry river bed) are natural channels, occurring in desert areas. A symbol distinction shall be shown between single-line and globulin wadis.

3.13.18.2 Sabkhas. Alkali Flats, etc. They are often salt encrusted and are marshy after a rain. Depending upon the degree of wetness, they may contain more or less scattered marsh like growths. Sabkhas show up very clearly as depression areas (with a definite outline) darker than the surrounding sand. The area of sabkha is often damp appearing, and often shows marsh-like growths.

3.13.18.3 Wet sand.

a. Many areas of sand which are normally wet exist adjacent to coastlines. The areas are usually extensive, low and flat, and separate the desert from the shore. During spring tides, the areas are often covered with water. These sand areas appear as dark gray and wet.

b. Certain natural depressions in desert areas are usually damp. In some, it is possible to find water a few feet below the surface.

3.13.19 Frozen areas.

a. Treatments for drainage features in frozen areas shall generally agree with those specified in the previous paragraphs.

b. Treatments for glaciers, permanent snowfields, permanent ice fields, ice peaks, ice cliffs, ice shelves, and pack ice are specified in 3.14.8.

3.13.20 Flow arrows. Direction of flow arrows shall be shown when doubt of stream direction exists.

3.14 Hypsography/Physiography.

3.14.1 Hypsography/Physiography: General.

a. It is required that the user be presented with maximum information pertaining to the typography of a sheet consistent with scale and operational use and that he be made fully aware of its accuracy. To achieve this aim, relief shall be portrayed by contours, spot elevations, form lines, shaded relief, and elevation tints.

b. Contour values and spot elevations shall be expressed in meters on Series 1501 (ground version) and in feet on Series 1501 AIR (air version). Spot elevation value shall be converted to the nearest equivalents, feet or meters, as appropriate.

3.14.2 Contouring.

3.14.2.1 Contour application. The principles described in this paragraph apply to all contours. No distinction in symbolization (solid versus dashed lines) is made to indicate vertical accuracy's. Accuracy information is contained in the reliability diagram.

3.14.2.2 Contour interval.

a. When existing topographic maps at 1:250,000 scale are converted into JOG products, the contour interval used thereon shall be retained when in meters. When the contours are in feet, the meter values for the ground version shall be taken from the conversion tables in Appendix G.

b. Supplementary contours (3.14.2.5) shall be added to the 1501 Series where necessary to depict the terrain character more realistically.

3.14.2.3 Index contours.

a. Index contours shall be drawn continuously throughout the sheet even though they coalesce. The presentation of unusual relief features may require an exception to this rule.

b. Index contours shall be shown as follows, except when deviations are required when converting foot values to meter values in accordance with 3.14.2.3.a:

- (1) 25-(20) meter interval - 100, 200, 300, etc.
- (2) 30-meter interval - 150, 300, 450, 600, etc.
- (3) 50-meter interval - 200, 400, 600, 800, etc.
- (4) 100-meter interval - 500, 1000, 1500, 2000, etc.

3.14.2.4 Intermediate contours. Intermediate contours may be omitted from the graphic where the slope is both steep and uniform. They must never be omitted where they have individual characteristic shapes or define the positions of change in slope.

3.14.2.5 Supplementary contours.

a. The interval of supplementary contours is determined from the prescribed contour interval for the graphic.

(1) Supplementary contours shall not be shown when the prescribed contour interval is 20 or 25 meters, except as noted in 3.14.2.5.e.

(2) When the prescribed contour interval is 30 meters (or multiples thereof), the interval of supplementary contours shall be one-fold the contour interval.

(3) When the prescribed contour interval is 50 meters, supplementations shall be shown at one-fold contour interval. These supplementations shall be delineated to the slope and accuracy criteria specified for contours; i.e., slopes of 0 to 10 percent, 25 meters, 90 percent assurance.

(4) When the prescribed contour interval is 100 meters or 200 meters, supplementaries at one-half the contour interval are usually shown. If this interval of supplementary contours does not meet the slope criteria, supplementary contours down to a 25-meter contour interval shall be added. (This condition will occur mainly on individual graphics which contain extensive level valley areas within predominately high terrain.) The supplementary contours shall be delineated to the slope and accuracy criteria specified for contours. The requirement for the 25-meter supplementary contour shall be specified in instructions for the project.

b. Supplementary contours are utilized to properly present important topographic formations which would not be revealed by the normal contour interval.

c. It is not expected that supplementary contours will be shown on all sheets or over the entire area of any one sheet; they shall be shown where they are essential to proper interpretation of the relief.

d. It is not necessary for supplementary contours to be continuous. They may be shown, in sections of any length, wherever their presence adds to the readability of the topography. However, supplementary contours, when shown as sections, must start and end at interpolative points, i.e., midway between the normal contours. Again, they may be interspaced either wholly or partially with the regular contours up to any contour line and then be omitted entirely for their addition in an area of higher elevation.

e. Where the prescribed contour interval is inadequate, supplementary contours should be used to indicate sharp summits along ridges and similar features, especially if their omission would present the top of the feature as being much flatter than it actually is.

3.14.2.6 Alignment of contours. The turning point of re-entrant contours that define steep drainage channels should, in general, be in alignment with one another.

3.14.2.7 Contour numbers. Adequate identification of the contour values must be contained on the graphic. They shall be right-reading from the south or east direction of the map/chart.

### 3.14.3 Spot elevations.

#### 3.14.3.1 Spot elevations: General.

a. The portrayal of spot elevations, including the highest spot elevation, shall be identical on the air and ground versions of the graphics except for the difference in the units of measure, feet and meters.

b. The portrayal of the Maximum Elevation Figure in each quadrangle is restricted to Series 1501 AIR. The information on accuracy of spot elevations shall be defined in the margin of the graphic.

c. Where all the elevations shown on the graphic are approximate, the plus or minus signs shall be omitted and the margin note shall be tailored to reflect the condition. Example:

The accuracy of all elevations shown on the graphic is not within 30 meters.

#### 3.14.3.2 Derived elevations.

a. When the absence of spot elevations results in an incomplete relief presentation, interpolated spot elevation values shall be added. As many interpolated spot elevations shall be added as necessary to reflect the terrain. The interpolated



values shall be derived by using either, or a combination of the following methods:

(1) Direct calculation. Elevations may be derived from the largest scale source available by adopting the value of the next higher contour on the source.

(2) Mathematical or mechanical methods. Other methods for approximating elevations may be used, provided they result in an accuracy approximately equal to or greater than the above.

b. In the circumstances described above, contour values may be higher than the elevations they enclose. Apply, in order of preference, either of the following corrective measures:

(1) A increase of 5 meters or 16 feet, whichever is appropriate, to the elevation.

(2) A increase of one-half the contour interval to the elevation.

### 3.14.3.3 Relief elevations.

a. The highest spot elevation on the graphic, including the overlap areas, shall be indicated. If unknown, the note in the legend shall read: Highest elevation is UNKNOWN

b. In any group of related features (ridges, summits, saddles), the highest elevation (critical) shall be shown for the dominating terrain, even if the most reliable value is on a topographic feature of lesser prominence. When no spot elevation is available for the highest feature, the value shall be interpolated from the contours and shall be shown as approximate; the value is located at the approximate point. When extensive areas are involved, usually three or four critical elevations per graphic will suffice.

c. A spot elevation shall not be shown indiscriminately on sides of slopes, in flat areas, or in those areas where they cannot be readily identified with a topographic or cultural feature. However, in areas where there are few elevation points, spot elevations may be shown when the contours are not sufficiently close to be effective aid in determining an elevation value by interpolation.

### 3.14.3.4 Maximum Elevation Figures (MEF)-Series 1501 AIR.

a. Maximum elevation figure information is required over all land masses, including areas of unreliable relief.

b. The maximum elevation figure represents the highest possible elevation including both terrain and other vertical obstructions (towers, trees, etc.) bounded by ticked lines of the

graticule. Maximum Elevation Figures are shown in 1,000-foot digits with smaller 100 foot digits. The last two digits of the number are not shown.

c. Where areas of unreliable relief exist on a graphic, a note spaced across the area is used instead of individual MEF's in each quadrangle. For example:

**MAXIMUM ELEVATION FIGURES ARE BELIEVED NOT TO EXCEED 7600 FEET**

(1) The note will be positioned in such a manner as to imply a general condition.

(2) Use of more than one note may be necessary where terrain characteristics vary considerably, in order to describe various situations.

d. If it is obvious that the portion of the quadrangle containing reliable relief represents the highest elevation, that value shall be applied. For example, the quadrangle containing Mt. Everest also contains an area of unreliable relief. Since the summit of Mt. Everest is obviously the highest point in the quadrangle, the MEF shown will not be affected by the unreliable relief area.

e. In determination of Maximum Elevation Figures, extreme care should be exercised to increase such figures only to the point where it is assured that they represent a safe flying altitude based on the existing elevation data shown on source material. The following procedures will be followed in the calculation of MEF.

(1) When within a designated quadrangle a man-made vertical obstruction is higher than the highest natural terrain feature plus an allowance of 46 meters (150 feet) for non-represented man-made obstructions:

(a) Determine the elevation of the top of the obstruction above sea level.

(b) Add the vertical error of the source material to the above figure.

(c) Round the resultant figure up to the next higher hundred-foot level if necessary to achieve a complete value in even hundreds of feet. This final figure is the MEF. Example:

Elevation of obstruction top (above mean sea level)	=	2424
Possible vertical error	=	<u>+250</u>
		2674
Raise to the next higher 100-foot level	=	2700
Maximum Elevation Figure (MEF)	=	27

(2) When within a designated quadrangle a man-made vertical obstruction is lower than the highest natural terrain feature plus an allowance of 46 meters (150 feet) for non-represented man-made obstructions or when a natural terrain feature is the highest point:

(a) Determine the elevation of the feature.

(b) Add the possible vertical error (one contour interval) of the source to the above figure.

(c) Add a 46 meters (150 foot) allowance for natural or man-made obstructions which are not portrayed because they are below the maximum height at which the specification requires their portrayal by an obstruction symbol.

(d) Round the resultant figure up to the next higher hundred-foot level if necessary to achieve a complete value in even hundreds of feet and this final figure is the MEF. Example:

Highest terrain elevation	=	3440
Possible vertical error	=	+250
Allowance <sup>2</sup>	=	<u>+200</u>
	=	3890
Raise to the next higher 100-foot level	=	3900
Maximum Elevation Figure (MEF)	=	39

f. An explanatory note shall be shown in the margin as part of the legend and shall read as follows:

#### ATTENTION

#### THIS CHART CONTAINS MAXIMUM ELEVATION FIGURES (MEF)

The Maximum Elevation Figure shown in quadrangles bounded by ticked lines of latitude and longitude are represented in THOUSANDS AND HUNDREDS of feet above mean sea level. The MEF is based on information available concerning the highest known feature in each quadrangle, including terrain and obstructions (trees, towers, antennas, etc.). In areas of extensive unreliable relief, the MEF is shown by a note spaced across the area.<sup>3</sup>

<sup>2</sup>For quadrangles which cover (totally or partially) areas of Canada, Denmark, France, Germany, Italy, Netherlands, or Turkey, use a 328-foot allowance instead of 150 feet.

<sup>3</sup>The last sentence should be deleted from the MEF note if indicated by individual chart conditions.

g. Maximum elevation figures will not be shown in overlaps of the graphic unless the entire land area, in an area not bounded by ticked lines of graticule, is contained on the graphic.

h. A minus sign (-) shall be shown in front of the Maximum Elevation Figure if required to indicate that the MEF is below sea level.

#### 3.14.4 Form lines.

a. Form lines are a system of lines applied on a graphic to indicate the general shapes of terrain features and formations. They illustrate no definite vertical interval and should not be capable of interpretation as contours.

b. Form lines shall be used to show relief only when available data does not warrant the use of contours, but are sufficient to show the general shapes of the terrain. Where form lines are shown, they shall not be used as continuations of contours, nor shall they be spaced or delineated to resemble contours.

c. No attempt shall be made to add contour values to form lines; however, every available spot elevation shall be shown.

#### 3.14.5 Relief data incomplete.

a. Where source materials are insufficient to show complete illustration of the relief by contouring, the area shall be outlined on the graphic and labeled: Relief data incomplete. Large areas shall carry an additional note along the edges of the areas reading: Limits of reliable relief information. Every effort should be made to avoid portrayal of small areas of this category by tying the contours through the areas.

b. Areas that are obtained from source materials that do not contain contouring, but do permit the illustration of relief as form lines, shall also be outlined and labeled as above.

#### 3.14.6 Shaded relief.

3.14.6.1 Shaded relief: General. Shaded relief provides a rapid indication of slope and landforms; it serves as a means of correlating the contours and spot elevations with emphasis on the most significant terrain features. These features may be extensive, such as ridges, or they may be localized, such as isolated small hills in a flat plain, etc.

#### 3.14.6.2 Portrayal of shaded relief.

a. Shaded relief shall be shown for all terrain, including areas of unreliable relief containing form lines. Omission of the shading is permissible:

(1) in mountainous terrain, where the slopes measuring less than 10 percent do not materially add to the relief portrayal.

(2) in hill terrain, where slopes measuring less than 7 percent do not materially add to the relief portrayal.

(3) in relatively level or gently rolling terrain measuring less than 7 percent grade.

b. Miscellaneous terrain features such as escarpments, bluffs, depressions, levees, volcanoes, faults, scarps, etc., may sometimes be more effectively expressed or enhanced by an artistic rendition of the shaded relief than by standard symbolization.

#### 3.14.7 Elevation tints.

##### 3.14.7.1 Elevation tints: General.

a. Elevation tints are not shown on Series 1501 sheets that are located within the boundaries of Allied Command, Europe (ACE) nations.

b. Three recommended elevation tint systems, consisting of a maximum of six tint bands each, have been developed for regions of low, moderate, and high elevation. See Appendix F.

c. All graphics within a region shall use the same tint-band system and, consequently, shall be continuous tints from graphic to graphic.

d. Where it is impossible to join two regions in a common tint band, the regional boundaries shall coincide with the projections limits of a graphic so that no graphic contains more than one tint band system. In such a case, the bleeding edge of a graphic shall carry the tint-band system of the remainder of the graphic; no attempt shall be made to obtain agreements with graphics to the east and north if they carry a different tint-band system.

##### 3.14.7.2 Elevation tint bands.

a. The three elevation tint-band systems to be shown are indicated below in Figure 6. The interval bands are intended as guides; adjustment with regard to contour interval may be necessary.

LOW ELEVATION REGION	MODERATE ELEVATION REGION	HIGH ELEVATION REGION
Meters (feet)	Meters (feet)	Meters (feet)
Below sea level-50 (165)	Below sea level-100 (330)	Below sea level-100 (330)
50-150 (495)	100-200 (660)	100-200 (660)
150-300 (985)	200-800 (2625)	200-900 (2955)
300-600 (1970)	800-1800 (5905)	900-2700 (8860)
600-900 (2955)	1800-3000 (9845)	2700-4500 (14765)
900-Maximum	3000-Maximum	4500-Maximum

FIGURE 6. Tint bands based on regional elevations.

b. A maximum of six tint bands may be applied to an individual graphic. Fewer bands shall be shown when warranted and appropriate. The span of elevation on a graphic shall govern the number of bands to be shown.

c. The delineation of tint bands shall be limited to contour lines.

d. Tint bands shall not be shown in areas where relief data are unreliable (depicted by form lines) or incomplete, or in areas of glaciers, ice fields, snow fields, etc.

e. The legend of elevation tints shown in the margin of the graphic shall contain only those rectangles which relate to the tints appearing in the body of the graphic.

### 3.14.8 Treatment of special cases and features.

#### 3.14.8.1 Treatment of special cases and features: General.

a. Certain cases exist for which special contouring instructions are required.

b. Certain cases also exist where contours alone will not adequately illustrate significant features.

c. Prescribed treatments for these cases are contained in this paragraph.

3.14.8.2 Contours in relation to elevations. Contours must be in agreement with spot elevation values shown (See 3.14.3.2).

3.14.8.3 Tops and saddles. Contouring of the tops of mountains, ridges, and hills and their connecting saddles must be given careful attention as these features are usually the most important and significant. They define the extent of water sheds, often define civil boundaries, and may directly control the

distribution and location of routes of communication. These features present decidedly varying characteristics from sharp and well-defined to flat or gently rolling and vaguely defined. With a given contour interval that is suitable for the steeper parts of the terrain, it is sometimes difficult to portray these features accurately without recourse to use supplementary contours or the liberal use of spot elevations. Where areas are relatively flat and of considerable extent, the proper use of supplementary contours will often provide the solution. The most troublesome situation is usually encountered when the relief along the top of the ridge falls within the range of one or two contour intervals. A ridge may consist of a series of distinct tops, but when strict adherence to the elevation criteria is maintained, the standard contour may indicate a smooth unbroken profile. The choice of treatment is the judicious use of spot elevations, supplementary contours, shaded relief, or the application of a sufficient amount of topographic license to bring out the distinctive features by deliberate and slight alignment of the contours in other than their exact positions. Thus, at times, the solution may be obtained by a displacement of contours which does not exceed plus or minus the contour interval.

#### 3.14.8.4 Steep slopes, scarps, cliffs, etc., higher than contour interval.

a. Where slopes are steep and of uniform grade, only the index contours shall normally be shown completely. Segments of the intermediate contours should appear at salient points at convenient intervals.

b. Where the gradient of embankments along roads, railroads, and like features is such that the contours defining the feature tend to coalesce, the contours shall be merged into one carrying contour. For treatment of banks along canals and ditches, see 3.14.8.8.

c. Pinnacles, needle-type peaks and buttes with nearly perpendicular sides offer perplexing problems of portrayal and their proper delineation is of extreme importance. The graphic shall employ contours, shaded relief, form lines, and spot elevations to portray the feature properly. When a combination of these will not show the proper formation, the relief feature shall be annotated.

#### 3.14.8.5 Depressions greater than contour interval.

a. Depressions of landmark value or affecting trafficability, which are not adequately portrayed by the normal contour treatment, shall have ticks added to the contour lines.

b. Care should be taken in the treatment of depressions at sheet edges in order to ensure that the feature is continued on the adjacent sheet. If there is no doubt that a feature is a depression, it shall be given the treatment prescribed above.

c. Artificial depressions formed by construction of railroad or road embankments shall be treated as directed in 3.14.8.9.

3.14.8.6 Steep slopes, cliffs, and depressions lower than contour interval.

a. Steep slopes, cliffs, and depressions lower than the contour interval shall be shown. Where the terrain is very rugged (deeply incised in excess of the contour interval), regard few, if any, such features. Where the terrain is moderately rugged, interpret only those higher than one-half the contour interval. Where the terrain is fairly flat, regard those equal to one-quarter the contour interval. Usually, those less than one-quarter the contour interval shall not be portrayed.

b. In certain areas, steep slopes are covered with terraces. Add a suitable note, repeated as necessary, over the area. Examples:

Terraces, Low terraces, Numerous terraces, Numerous low terraces.

c. The extent of terraced areas shall be indicated by limiting outlines.

3.14.8.7 Levees.

a. Levees and spoil banks which are of sufficient size and importance shall be shown.

b. In areas containing numerous levees, only the main levees which form the characteristic pattern of the system shall be shown. Secondary levees shall be omitted unless they are obviously important, strategically or otherwise, or where their omission would create an erroneous conception of the characteristic pattern.

c. For treatment of levees in cranberry bogs and rice fields, see 3.13.13 and 3.13.14.

3.14.8.8 Ditches and canals.

a. Man-made irrigation and drainage ditches are comparatively narrow features usually occurring in areas of low relief. Representation of the banks of these features by contours is impracticable since the result would over emphasize the width of a narrow feature.

b. The gradient of ditches shall be shown. The contours shall be drawn continuously along each side of the ditch or canal, and shall be turned upstream a sufficient distance to depict the flatness of the terrain and the direction of flow of the feature, and then drawn across the ditch or canal.



3.14.8.9 Cuts and fills. A carrying contour shall be used to indicate cuts or fills whose heights exceed the contour interval.

3.14.8.10 Land subject to inundation. Drainage treatments for flood control reservoirs and areas subject to inundation are prescribed in 3.13.15.

3.14.8.11 Wide intermittent and dry river beds.

a. Contours shall be shown within the limits of wide (more than 1.25 mm) intermittent and dry river beds.

b. Detailed instructions for depicting these features are contained in 3.13.5.2.

3.14.8.12 Dry lakes and ponds. Dry Lakes shall be symbolized with the wet sand symbol and shall contain contours.

3.14.8.13 Sand dunes/sand hills, sand and sand-gravel areas.

a. Sand and gravel areas are included for contouring.

b. The portrayal of dunes depends on the quality and type of the source material, and the nature and extent of the area.

(1) Where adequate photography is available, dunes are shown with the appropriate prepared pattern. The prepared patterns represent the main types of dune configurations. The pattern that most closely reflects actual dune characteristics, as seen on the photography, is selected and positioned to indicate the true orientation of the dunes.

(2) Where adequate photography is not available, the dunes may be shown facsimile as indicated on source maps or by the appropriate prepared pattern.

(3) In areas where individual dunes cannot be shown because they change frequently or because they are too small for the scale of the map, the areas of dunes shall be outlined and labeled.

(4) Every effort should be made to insure that the treatment of sand dunes remains consistent with adjoining sheets.

c. Sand dunes/sand hills will not be contoured.

d. Sand occurring in tidal waters shall be treated as directed in paragraph 3.14.8.31 for Foreshore flats.

3.14.8.14 Coastal beaches. For the purposes of these specifications, a gravel-strewn beach is defined as a shore which is predominately covered with stone of such size (approximately

50.80 mm to 254.00 mm in diameter) as to present obstacles to free passage.

#### 3.14.8.15 Distorted surface areas.

a. In certain types of country, the prescribed contour interval may adequately represent the general slope of the terrain but cannot properly present other significant detail. Examples are karst, loess, gas or oil blisters or bumps, rock-covered or boulder-covered areas in glaciated country, rock out-crops (distinctive rock outcrops formed by highly tilted strata), and lava-covered areas. Such areas are contoured disregarding small irregularities.

b. When a single or multiple feature involves an area approximately larger than 2.5 mm by 2.5 mm, it shall be shown by outline. Areas smaller than the specified size normally shall not receive the special symbolization; the contours shall suffice.

#### 3.14.8.16 Strip mines, tailing piles, mine dumps.

a. Strip mining may result in several types of temporary or permanent surface displacements. Large areas of ridges, hollows, and holes may result. Some underground mines close to the ground surface present a similar problem after the operations have ceased and mines have caved in.

b. Tailing piles are conical or elongated heaps of gravel or sandy material piled up in hydraulic mining, dredging, placer mining, or by discharge from certain metal mines.

c. Mine dumps are made up of the debris remaining after the ore has been extracted. Some dumps are in the tailings class, covering widespread areas, while others are high piles of refuse covering limited areas.

d. In areas where the relief is such that the contours can adequately illustrate the disruptions, contours shall be used. Where contours are inadequate the appropriate symbols in conjunction with contours will be used to portray the disruptions.

e. Where contours will not clearly define the extent and character of the area, the appropriate symbol shall be applied over the area. The area is labeled appropriately.

3.14.8.17 Tailing ponds. Mill tailings are the residue of certain ore-reducing processes. The tailings are pumped into a settling basin which is called a tailings pond.

3.14.8.18 Mine tunnels and shafts. Mine tunnels and shafts and areas containing numerous such features shall be treated as directed in 3.12.13.6.b.

3.14.8.19 Quarries. Quarries shall be shown and treated the same as strip mines, as directed in 3.14.8.16.

3.14.8.20 Asphalt lakes (surficial material).

a. Asphalt lakes are natural deposits of this mineral in large pools and may be located in swampy areas or covered with water. The origin of asphalt lakes can be attributed to an exuding of the material from the earth in a manner similar to spring-fed lakes.

b. Similar deposits of bitumen's called also exist.

3.14.8.21 Caves. Caves shall be portrayed when of landmark value. The shaft of the cave symbol points in the general direction of the cave interior.

3.14.8.22 Mountain passes. All mountain passes shall be shown.

3.14.8.23 Tundra.

a. Tundra is a prairie-like region of permafrost subsoil in the Arctic and subarctic zones which sustains a growth of very low vegetation. The vegetation consists of lichens, mosses, grasses, stunted bushes, and stunted trees of very low growth.

b. The surface of some southern areas contains hummocks, formed by the permafrost subsoil.

c. Marshes, swamps, and similar features (muskegs, etc.) which occur within tundra areas shall be treated as directed in 3.13.10.

3.14.8.24 Glaciers.

a. The heads of glaciers shall be delineated where they meet snow fields or ice fields.

b. Areas covered by moraine shall be indicated.

3.14.8.25 Permanent snow fields and ice fields. Areas of permanent snow fields and ice fields shall be shown. The principles of portraying relief, previously described, shall be followed.

3.14.8.26 Nunataks and ice peaks. A nunatak is a prominent promontory of bare rock rising above a surrounding area which is perpetually covered by snow or ice. An ice peak is a similarly situated permanent feature, except that it is perpetually covered with snow or ice.

a. Treatments for both features are similar.

b. Previous instructions for portraying relief shall be applied to both features.

3.14.8.27 Ice cliffs. An ice cliff is a sheer-faced front of a glacier or ice shelf where it meets the sea. The shape of an ice cliff is not permanent.

3.14.8.28 Ice shelf. An ice shelf is a floating ice sheet of considerable thickness, attached to the coast, and showing above sea level. It is usually of great horizontal extent and with level or gently undulating surface. The ice shelf is nourished by annual snow accumulation and often by the seaward extension of land glaciers. Limited areas may be aground. The seaward edge of the feature is termed on ice front.

3.14.8.29 Pack ice. Pack ice includes any area of ice originating from the freezing of sea water, regardless of what form it takes or how it is disposed.

a. Pack ice shall be depicted by indicating the approximate maximum limits of the feature, along with the month in which it occurs. The portrayal of the feature is illustrated in Figure 7. When the entire water area of the graphic is covered by pack ice, the following note shall be shown in the approximate center of the water area:

APPROXIMATE MAXIMUM LIMIT OF PACK ICE (MONTH) IS SOUTH OF THIS CHART

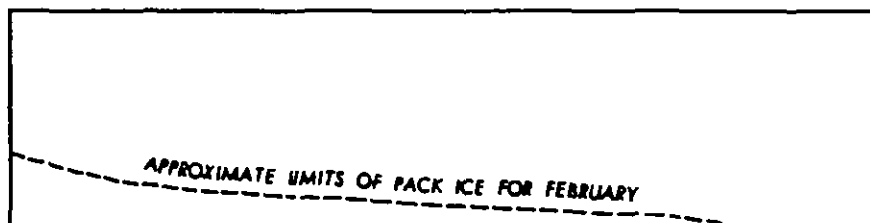


Figure 7. Portrayal of pack ice.

b. The permanent polar ice pack shall be shown.

3.14.8.30 Coastal hydrography.

a. The hydrographic features and related data portrayed on the Series 1501/1501 AIR sheets are required to provide the following landmark uses which are listed by priority in descending order:

(1) Aerial in-flight uses which include visual/radar pilotage and air/sea rescue operations.

(2) Targeting for both air and surface operations.

(3) General tactical planning for air, ground, and amphibious operations.

b. Landmark and radar significance is the primary consideration in selecting features to be shown.

c. Marine surface navigation use of the JOG is considered potentially dangerous because of the generalized and skeletonized nature of the hydrographic information shown. For this reason, the following note shall be shown in the open water area:

**NOT TO BE USED FOR SURFACE OR SUBSURFACE NAVIGATION**

d. A sheet containing tidal waters, or large lakes used for commercial navigation, shall show coastal hydrographic features and notes pertaining to those features as described in the following paragraphs.

e. An exception to the requirements of paragraphs a. and b. above must necessarily be made whenever source material is unavailable or inadequate.

f. The term coastal hydrographic features includes depth contours, bottom characteristics, important natural features, and relatively permanent cultural detail on the seaward side of the shoreline.

g. The hydrographic datum or plane of reference for surroundings (sometimes called the sounding datum) is that stage of tide to which depths are referred. (When the tidal range is negligible, mean sea level is used). The hydrographic datum shall be that used on the source materials.

h. The offshore area is defined as being that zone which extends from the low water mark to an indefinite distance seaward which never uncovers at any tide. See Figure 8.

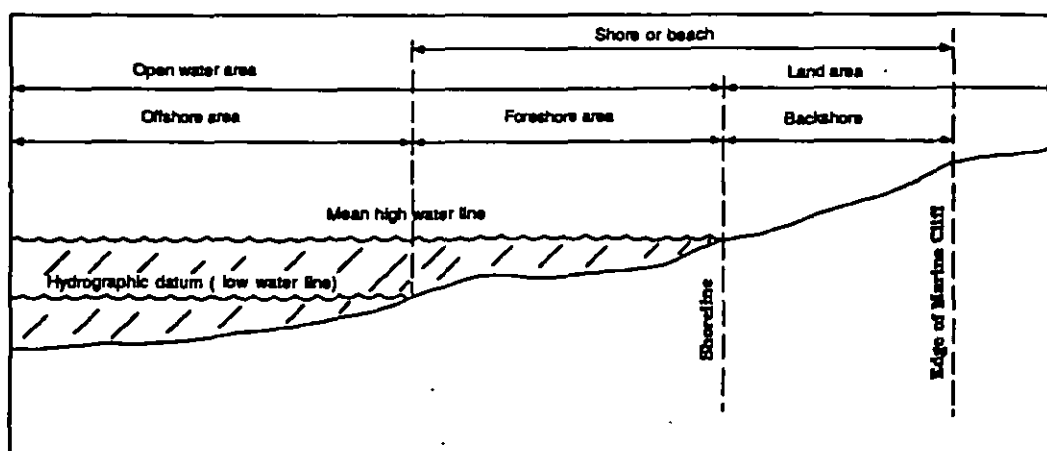


Figure 8. Illustration of coastal terms.

i. The coastal hydrographic portion of the graphic shall show landmark foreshore and offshore features and notes as

directed in the following paragraphs. When elimination is necessary because of congestion, items to be retained shall be those of most importance to the air navigator as visual and/or radar landmarks.

j. When aerial photography is available, the graphic should include features appearing thereon, even though the features do not appear on other source materials.

(1) No abbreviations shall appear on the graphic. The proper conversions from abbreviations to full forms are required.

(2) Careful consideration must be given to the placement of type, especially notes on the graphic.

(3) Symbolization of coastal hydrographic features is contained in the MIL-STD-2402.

#### 3.14.8.31 Foreshore flats.

a. Foreshore flats occur only in tidal waters. They may be either contiguous to or detached from a shoreline. Generally, the flat is devoid of vegetation, usually being composed of sand, gravel, sand and gravel, boulders, boulders and sand, mud, or clay. In some cases, the flat may contain low or sparse sea-grass growths; these are to be treated as foreshore flats and not as coastal marshes. Such foreshore features as reefs and rocky ledges are discussed in 3.14.8.32.

b. The limits of foreshore flats shall be shown, but are not labeled as to composition.

#### 3.14.8.32 Reefs and rocky ledges.

a. A reef is a rocky or coral feature which may or may not be above the hydrographic datum and may or may not be detached from the shore. A ledge is a rocky formation connected with and fringing the shore and is generally above the hydrographic datum in elevation.

b. Large reefs or ledges are portrayed when exposed or awash at the hydrographic datum. Open pools in extensive coral reefs shall be shown wherever their size is considered significant.

3.14.8.33 Rocks uncovering or awash. Rocks which uncover or are awash at the hydrographic datum but are covered at high water are known as rocks uncovering or awash. They shall be shown only when they are landmarks.

#### 3.14.8.34 Exposed wrecks.

a. Exposed or stranded wrecks are those having any portion of the hull exposed at the hydrographic datum.

b. A group of exposed wrecks is indicated by the limit-of-danger line marking the outer limits of the area.

#### 3.14.8.35 Depth contours.

a. A depth contour is comparable to a contour on land, the contour representing an imaginary offshore line, all points of which are at the same depth below the hydrographic datum.

b. The principles which govern the delineation of depth contours are similar to those which govern the delineation of land contours.

c. Depth contours shall be derived from national hydrographic charts.

#### 3.15 Vegetation.

##### 3.15.1 Vegetation: General.

a. While areas of vegetation smaller than the inclusion condition are normally omitted, exception shall be made on sheets containing sparse vegetation. In such cases, small clumps of vegetation shall be shown if they serve as landmarks, even if a slight exaggeration in scale is necessary. When the vegetation selected for its landmark value cannot be symbolized, the outline shall be indicated and labeled.

b. To qualify the term, vegetation need not necessarily be continuous; clear space may appear between individual growths. While no absolute rule can be applied due to peculiarities of locality, an area of scattered growth having approximately 25 percent canopy cover or more shall generally be considered of sufficient density to be shown.

c. Areas of vegetation shall be shown true to their shape insofar as the scale will permit. Exaggeration shall be held to a minimum and used only to show clearings for firebreaks.

d. Wooded marshes (cypress swamps, sago swamps, etc.) other than mangrove and nipa require no special treatment. The vegetation shall be symbolized in its prescribed manner on the vegetation copy with the marsh treated as a drainage feature.

3.15.2 Woods, jungle. Woods and jungle are growths of perennial vegetation which are of sufficient stand or height to afford concealment for troops; or any perennial growth which is so thick, regardless of height, that it affords obstacles to free passage, either pedestrian, equestrian, or vehicular. Included in this category are woods of any type, such as palm, palmetto, bamboo, orchards or plantations which are irregularly planted or of wild growth, nurseries, reforested areas, and thick low growths.

3.15.3 Orchards, plantations, vineyards.

a. Orchards, vineyards, and similar systematic plantations of perennial vegetation are collectively defined as areas covered by planned plantings of perennial trees: tall bushes; or vines which yield fruits, nuts, spices, or other commercial products exclusive of timber. Usually, there is open ground visible between the plantings.

b. Regularly planted palms shall be included in this category.

3.15.4 Tropical grass. On aerial photographs, tropical grasslands appear light gray or whitish in color with an even surface. In certain lights and depending on the flight height, tropical grass resembles open water.

3.15.5 Mangrove, nipa. Discussions of mangrove and nipa are contained in 3.13.11 and 3.13.12.

3.15.6 Scattered trees. Scattered trees shall be portrayed.

3.15.7 Shelter belts. Shelter belts are a natural or planted barrier of trees or shrubs. They are shown only in areas devoid of other landmark features.

3.16 Demarcation.

3.16.1 Demarcation policy. Boundaries must be in accord with the current national policy of the producing nation.

3.16.2 Boundary selection.

a. Graphics shall show only major administrative boundaries: international and primary administrative boundaries.

(1) First-Order Administrative Division boundaries are those which separate the principal divisions of a country, such as state, province, prefecture, etc.

(2) Second-Order Administrative Division boundaries are those which divide the primary administrative divisions of a country into local administrative units.

b. Reservations shall be shown according to the following guideline: National, military, tribal, and forest reservations, including national parks, shall be outlined by the boundary symbol.

3.16.3 De Facto boundaries (Other lines of separation).

a. De Facto boundaries which exist as the result of treaties that are not necessarily recognized by the producing



nation shall be included only if in accord with current national policies.

b. The accepted boundary, (symbolized normally), must be shown in addition to the defacto boundary.

#### 3.16.4 Other boundaries.

a. No general term completely covers the various types of boundaries encountered in this grouping. However, these boundaries are generally included in the "Other lines of separation" terminology. Included in the grouping are:

(1) Provisional military (internal) demarcation lines; e.g., Korea.

(2) Cease-fire or armistice lines; e.g., boundaries in Israel.

(3) Zones of occupation.

(4) Demilitarized Zones; e.g., Korea.

3.16.5 Inaccurate boundaries. Where source material is insufficient to permit delineation of at least an approximate boundary, then no boundary shall be shown. Instead, an appropriately worded note shall be added in the margin.

3.16.6 Margin explanation. The margin of the graphic shall contain a legend of the boundary symbols appearing thereon, with the symbols defined according to the accepted administrative phraseology of the countries concerned.

#### 3.17 Aeronautical.

##### 3.17.1 Aeronautical: General.

a. Unless specified otherwise, aeronautical requirements set forth in this section apply to both versions of the Joint Operations Graphics.

b. See MIL-STD-2402 for the symbolization of aeronautical information.

##### 3.17.2 Aircraft Facility.

a. The following installations (military or civil) shall be shown:

(1) Aircraft facilities.

(2) Heliports or pads (limited to hospitals) used for helicopter operations.

b. Aircraft facility runways (either hard, soft, unimproved, or of unknown surface) with 457 meters (1500 feet) or more of runway will be shown. Specific airfields required by military forces will be shown regardless of runway length.

c. Aircraft facilities that are not usable, or are closed or abandoned, but are still readily identifiable from the air, shall be shown.

d. Statistical data for all aircraft facilities shall consist of the following:

1501 AIR	1501
Aircraft facility name	Aircraft facility name
Length of runway in feet	Length of runway in meters
Elevation in meters	Elevation in meters
Surface characteristic	Surface characteristic

(1) Aircraft facility name. In all instances only one name is shown; that of the military or civil agency exercising control.

(2) Length of runway. The length of the longest runway is shown.

(3) Surface characteristic. Soft or unimproved runway surfaces shall be indicated with the letter "s", lower case. Unknown runway surfaces shall be indicated with the letter "u", lower case. Absence of a code letter indicates hard surface runways.

(4) Elevation. The elevation of aircraft facilities is shown. Elevations values for 1501 AIR in feet; those on 1501 shall be in meters, regardless of the native unit of measure in the area being mapped.

3.17.3 Heliports/Helipads. No statistical data are required unless specifically requested by military forces.

#### 3.17.4 Radio navigation and communication facilities (1501 AIR only).

a. Radio facilities located within or upon an aircraft facility symbol are not shown by symbol. In cases of runway patterns, if the radio facility can be depicted by using the transmitter symbol without confusing or congesting the runway pattern, the symbol shall be shown.

b. Radio facilities are identified.

c. The identification of VOR stations shall consist of the name and type of facility only.

3.17.5 Controlled airspace (1501 AIR only).

a. Compulsory corridors are shown only as noted in 3.17.5.d.

b. The Air Defense Identification Zones (ADIZ). When a chart falls entirely within one ADIZ, the following boxed note shall be positioned in the body graphic:

Entire area of this chart falls within (name) ADIZ.

c. All officially designated Buffer Zones are shown. When a chart falls entirely within one Buffer Zone, the following boxed note shall be positioned in the body of the graphic:

Entire area of this chart falls within the (name ) Buffer Zone.

d. The 20-statute-mile radius Berlin Control Zone and associated corridors are required.

e. Warning notes.

(1) Warning notes will be shown where required.

(2) Add the following sentence to required warning notes on 1501 AIR graphics in the proximity of Chinese Bloc borders.

Consult NOTAMS and Flight Information Publications for the latest air information.

3.17.6 Visual aids (1501 AIR only).

a. Aeronautical lights and their characteristics, if any, will be identified.

b. Marine lights shall be shown in areas of isolation (Landmark).

3.17.7 Obstructions.

a. All cultural features which extend 46 meters (150 feet) or more above the surrounding terrain are considered a hazard to flight and shall be shown and labeled, indicating nature of

obstruction; e.g., buildings, smokestack, etc. Powerlines are considered hazards to flight, and are shown.

b. Radio facilities that are also obstructions are shown by a unique obstruction symbol.

c. Group obstructions are shown as illustrated in MIL-STD-2402, Symbology.

d. The height of the structure above ground level, as well as the elevation of the top of the obstruction above sea level, shall be shown when it is known or can be estimated.

e. Where the highest point of an obstacle or hazard above sea level is given and its height above ground is not known, an estimation of height above ground should be made.

f. The estimation, based on best source available, must be high enough to assure clearance of the structure. Estimated heights shall be portrayed on the graphics in the same manner as accurate heights, without an indication of reliability. Where the height of the structure above ground is known and the elevation of the highest point above sea level is not known, an estimation of the highest point of the structure above sea level should be made, based on the same criteria.

g. Obstructions that are questionable as to existence or position shall be shown in the same manner as reliable obstructions except that an appropriate note shall be placed immediately below the "above sea level" elevation. Examples of the note are: Existence doubtful; Position approximate.

h. The following notes shall be added to the margin of each graphic (substitute metric values on Series 1501):

Powerlines are shown except within populated place tints. Other obstructions are shown if they are 150 feet or more above ground level. See caution note.

3.17.8 Plotting requirements. The aeronautical symbols are accurately plotted in their true geographic positions, if possible, but these symbols may be shifted when required to do so, so that relative position to base detail is maintained.

### 3.18 Names and labeling.

a. Refer to MIL-STD-2402, Appendix A and this specification or MIL-STD-2403 for proper naming and labeling of applicable features.

b. The following is a list of features which may or may not appear in MIL-STD-2402 as a defined feature code or attribute, but may be named on the final product.

NAME	EXAMPLE
Banks	Outer Banks
Basin	Great Basin
Bay	Chesapeake Bay
Beach	Virginia Beach
Bench	
Bend	
Bluff	
Bottom	
Break	
Butte	
Canyon	Grand Canyon
Cape	Cape of Good Hope
Channel	English Channel
City	New York City
Cliff	
Corner	Tyson's Corner
Cove	
Crossing	
Desert	Sahara Desert
Dispersed Village	
Dome	
Everglade	Florida Everglades
Falls	
Flat	
Flats	
Forest	
Gap	
Gorge	
Gulch	
Gulf	Gulf of Mexico
Gut	
Hamlet	
Harbor	Boston Harbor
Head	
Highland	
Hill	
Hole	
Hollow	
Inlet	Hamilton Inlet
Island Chain	Hawaiian Islands
Junction	
Jungle	
Knob	
Knoll	
Lagoon	
Lake	
Lands	
Lookout	
Marina	
Mesa	
Mountain	
Mountain Range	Rocky Mountains

NAME (continued)	EXAMPLE (continued)
Narrows	
Neck	
Ocean	Atlantic Ocean
Park	Yellowstone National Park
Pass	
Passage	
Patch	
Peak	Pikes Peak
Plain	Great Plains
Plateau	Colorado Plateau
Point	
Pool	
Port	
Range	Coastal Range
Ravine	
Region	
Ridge	
River	
Roadstead	
Rock	
Sands	
Scattered Village	comunidades of South America streusudlung of Eastern Europe
Sea	Caribbean Sea
Sea Mount	
Shelf	
Shoals	
Sink	
Sound	Puget Sound
Spit	
Spring	
Spur	
Strait	Bering Strait
Summit	
Town	
Valley	Death Valley
Village	Greenwich Village
Wood	

### 3.18.1 Names requirements.

a. The density of names on the graphics should be the maximum which is compatible with scale and the development of the area being portrayed. That is, significant detail shall not be obliterated by the density of the names shown. The cartographer must maintain an awareness of the importance of not cluttering the graphic with names to the point that it detracts from or obliterates other features. Consider:

- (1) The importance of the feature to be named.

(2) The size and style of type to be shown as well as its placement.

(3) The addition of ideographs in certain areas.

(4) Legibility of all features, including names identifications.

b. In areas of sparse culture (development), any feature which can be used as a point of reference assumes a significance far beyond that which it would have in a developed area. If named, the name would add materially to its use as a reference or landmark and should be included.

3.19 Radar. This section is not applicable to this specification.

3.20 Intelligence Annotation. This section is not applicable to this specification.

3.21 Special Area. This section is not applicable to this specification.

3.22 Symbology. See MIL-STD-2402.

3.23 Reproduction. See MIL-STD-2410.

3.23.1 Reproduction: General.

a. Reproduction shall be by lithography. The final product shall conform with the best lithographic quality standards with respect to clearness, conformance with specified colors, and accuracy of registration.

b. Series 1501/1501 AIR shall be printed on JCP E-30 map paper. Equivalent paper as approved by national authorities may be used.

c. Color blocks, when used, shall be positioned outside the trim lines.

d. The individual features required on each color separation are specified in of these specifications.

3.23.2 Standard printing colors and screens.

a. The producing agency shall match, within acceptable tolerances, the specified colors and screens. Where necessary, equivalents approved by national authorities may be used.

b. The printing colors and screens requirements are the same for both the 1501 JOG and the 1501A JOG AIR.

c. The standard printing colors and screens listed are illustrated as follows:

#### STANDARD PRINTING COLORS AND SCREENS

SEPARATION	SCREEN	ANGLE	SPC PRINTING COLOR
City Tint .....	674-120D .....	45° .....	58600 Black
Continuous Habitation .....	214-120D .....	45° .....	58600 Black
Culture .....	Solid .....	— .....	58600 Black
Roads (1501/1501 AIR) .....	674 Biangle-240D .....	30°/60° .....	58600 Black
Fair or dry weather, loose surface			
Tracks; Trails .....	Solid .....	— .....	58600 Black
Projection .....	Solid .....	— .....	58600 Black
Black Typography (1501/1501 AIR) .....	Solid .....	— .....	58600 Black
Shaded Relief .....	Halftone .....	90° .....	57003 Gray
Drainage .....	Solid .....	— .....	48253 Blue
Open Water .....	314-120D .....	45° .....	48253 Blue
Inland Open Water .....	344-120D .....	45° .....	48253 Blue
Miscellaneous Drainage Features .....	Various .....	— .....	48253 Blue
Drainage Type .....	Solid .....	— .....	48253 Blue
Drainage Elevations (Feet) .....	Solid .....	— .....	48253 Blue
Drainage Type (Meters) .....	Solid .....	— .....	48253 Blue
Military Grid (UTM) .....	Solid .....	— .....	48253 Blue
† Military Grid Values .....	Solid .....	— .....	48253 Blue
Powerlines and Pylons .....	Solid .....	— .....	46351 Blue (Aero)
Aeronautical (1501/1501AIR) .....	Solid .....	— .....	46351 Blue (Aero)
Relief (1501/1501 AIR) .....	Solid .....	— .....	61121 Red/Brown
Supplementary Contours (1501) .....	Solid .....	— .....	61121 Red/Brown
Miscellaneous Relief Features .....	Various .....	— .....	61121 Red/Brown
Contour Values in Feet .....	Solid .....	— .....	61121 Red/Brown
Contour Values in Meters .....	Solid .....	— .....	61121 Red/Brown
Road Fills .....	674 Biangle-240D .....	30°/60° .....	61121 Red/Brown
All weather, loose or light surface			
Roads .....	Solid .....	— .....	61121 Red/Brown
All weather, Hard surface			
Boundary Overprint .....	544-120D .....	60° .....	61121 Red-Brown
Road Distances (1501 Only) .....	Solid .....	— .....	61121 Red-Brown
Woods .....	Solid .....	— .....	56435 Green
Miscellaneous Vegetation Features .....	Various .....	— .....	46435 Green
Shelter Belts .....	Solid .....	— .....	46435 Green
†† Elevation Tint No. 1 .....	— .....	— .....	—
Elevation Tint No. 2 .....	LP-15 .....	45° .....	57437 Yellow
Elevation Tint No. 3 .....	LP-12 .....	135° .....	57437 Yellow
Elevation Tint No. 4 .....	794-120D .....	45° .....	57437 Yellow
Elevation Tint No. 5 .....	LP-15 .....	45° .....	58135 Brown
Elevation Tint No. 6 .....	LP-5 .....	45° .....	58135 Brown
† Printing color for British grid values shall be as specified on the grid negative..			
†† Elevation Tint No. 1 includes areas that are below sea level and shall be distinguished simply as Paper White.			

#### 3.23.3 Process printing colors and screens.

a. When the simulated five-color process printing technique is employed, the producing agency shall match, within acceptable tolerances, the printing colors and screens specified.

b. The process printing colors and screens requirements are the same for both the 1501 JOG and the 1501A JOG AIR.



c. The process printing colors and screens listed are illustrated as follows:.

## PROCESS PRINTING COLORS AND SCREENS

SEPARATION	SCREEN	ANGLE	SPC PRINTING COLOR
City Tint .....	54%-120D .....	45° .....	58600 Black
Continuous Habitation .....	21%-120D .....	45° .....	58600 Black
Culture .....	Solid .....	— .....	58600 Black
Roads .....	67% Biangle-240D .....	30°/60° .....	58600 Black
Fair or dry weather, loose surface			
Tracks; Trails .....	Solid .....	— .....	58600 Black
Projection .....	Solid .....	— .....	58600 Black
Black Typography (1501/1501 AIR) .....	Solid .....	— .....	58600 Black
†† Shaded Relief .....	31%-200D .....	27° .....	58600 Black
Drainage .....	Solid .....	— .....	48253 Blue
Open Water .....	31%-120D .....	45° .....	48253 Blue
Inland Open Water .....	31%-120D .....	45° .....	48253 Blue
Miscellaneous Drainage Features .....	Various .....	— .....	48253 Blue
Drainage Type .....	Solid .....	— .....	48253 Blue
Drainage Elevations (Feet) .....	Solid .....	— .....	48253 Blue
Drainage Type (Meters) .....	Solid .....	— .....	48253 Blue
Military Grid (UTM) .....	Solid .....	— .....	48253 Blue
Military Grid Values .....	Solid .....	— .....	48253 Blue
† Woods .....	31%-120D .....	75° .....	48253 Blue
† Miscellaneous Vegetation Features .....	Various & 31%-120D .....	75° .....	48253 Blue
† Shelter Belts .....	31%-120D .....	75° .....	48253 Blue
Powerlines and Pylons .....	Solid .....	— .....	46351 Blue (Aero)
Aeronautical (1501/1501AIR) .....	Solid .....	— .....	46351 Blue (Aero)
Relief (1501/1501 AIR) .....	Solid .....	— .....	61121 Red-Brown
Supplementary Contours (1501) .....	Solid .....	— .....	61121 Red-Brown
Miscellaneous Relief Features .....	Solid .....	— .....	61121 Red-Brown
Contour Values in Feet .....	Solid .....	— .....	61121 Red-Brown
Contour Values in Meters .....	Solid .....	— .....	61121 Red-Brown
Roads .....	67%-240D .....	30°/60° .....	61121 Red-Brown
All weather, loose or light surface			
Road Fills .....	Solid .....	— .....	61121 Red-Brown
All weather, hard surface			
Boundary Overprint .....	54%-120D .....	60° .....	61121 Red-Brown
Road Distances (1501 Only) .....	Solid .....	— .....	61121 Red-Brown
† Elevation Tint No. 5 .....	LP-15 & 21%-120D .....	75° .....	61121 Red-Brown
† Elevation Tint No. 6 .....	LP-5 & 21%-120D .....	75° .....	61121 Red-Brown
† Woods .....	79-120D .....	30° .....	57377 Yellow
† Miscellaneous Vegetation Features .....	79%-120D .....	30° .....	57377 Yellow
† Shelter Belts .....	79%-120D .....	30° .....	57377 Yellow
† Elevation Tint No. 2 .....	LP-15 & 42%-120D .....	75° .....	57377 Yellow
† Elevation Tint No. 3 .....	LP-12 & 42%-120D .....	75° .....	57377 Yellow
† Elevation Tint No. 4 .....	42%-120D .....	75° .....	57377 Yellow
† Elevation Tint No. 5 .....	LP-15 & 42%-120D .....	15° .....	57377 Yellow
† Elevation Tint No. 6 .....	LP-5 & 42%-120D .....	15° .....	57377 Yellow

† Topographic features to be printed in simulated color.

†† A 42% or 54%-240D screen may be substituted dependent upon the density of the 90° halftone negative prepared from the shaded relief drawing.

3.23.4 Reproduction masks.

a. The shaded relief, elevation tints, and wooded areas shall be masked to avoid overprinting the following features:

(1) Populated place tints (including continuous habitations).

(2) Outlined airfields: Aircraft facilities whose basic symbol is a circle. Populated-place and continuation-habitation tints are also eliminated from the all aircraft facilities.

## (3) Roads

(4) Drainage features, such as intermittent lakes, mangroves, salt evaporators, etc.

(5) All route markers.

(6) Permanent snow, ice, glaciers. (Exception: Shaded relief shall not be masked from these features.)

(7) Open water areas.

b. A halo mask shall be prepared from the black typography plate of each version of the JOG for use when processing linear features that print black.

c. The contours shall be masked from contour values by a photomechanically derived (halo) mask, or some other suitable method that emulates the result of photomechanical, prepared from each contour value (label) plate.

3.23.5 Finishing instructions.

a. Trimming. The JOG, when trimmed, shall measure 55.880 cm by 73.660 cm, including margins as indicated on the style sheets for these products. An exact trimming of the north and east edges (bleed edges) is required in accordance with the trim marks.

b. Folding, Wrapping (including associated labels). All folding and wrapping for the published JOG series shall be in accordance with national policy (see section 5 PACKAGING).

3.24 Feature/Attribute.

3.24.1 Feature/Attribute: General. This section contains feature, feature attributes category, values, inclusion conditions and specific rules corresponding to JOG production.

3.24.2 Feature/Attribute category, inclusions and product generation rules. The following is an explanation of the header format for Table I (see Figure 9 for an example) of this specification:

<u>ECode</u>	<u>Feature</u>	<u>ET</u>	<u>ACode</u>	<u>Attribute</u>	<u>Inclusion Condition</u>	<u>Rule</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) F(Feature) Code - 5 digit alpha numeric, Feature Attribute Coding Standard (FACS) Code assigned to each feature (e.g., 1 - Culture Category, N = Transportation R/R subcategory).

(2) Feature - Name of feature as specified in the FACS. A feature is a physical (e. g., Bridge) or conceptual

**TABLE I** Feature/Attribute categories, Inclusion conditions and Product rules.

PRODUCT: 1:50,000 TLM	(product type)
CATEGORY: Culture (1)	(feature category)
SUB CATEGORY: Extraction (1A)	(feature sub category)

~~250 JOG 250 JOG 250 JOG 250 JOG-250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250~~

FCode (1)	Feature (2)	Attributes	Rules (7)
Feature Type (3)	XXX (4)	Attribute (5)	

**Inclusion Conditions: (6)**

~~250 JOG 250 JOG 250 JOG 250 JOG 250 JOG-250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250 JOG 250~~

FIGURE 9. Example Table I format.

(e. g., Route- Nautical) entity of the real world which has one more set of coordinates to be included on a product.

(3) Feature type (FT) - Designation of a feature type.

Area - More than two sets of coordinates defining a closed area (polygon); areas may span more than one map sheet or geographic area requirement.

Line - Two or more coordinate sets defining a series of line segments.

**Point** - One set of coordinates.

If there is more than one feature type for the feature, then the ACode and Inclusion conditions are stated separately for each type.

(4) A (Attribute) code - Three digit alpha or alpha numeric character (acronym) FACS code assigned to each attribute category which identifies the attribute category (e. g., EXS - Existence Category). Attribute categories are defined by mutually exclusive sets of attribute values which are feature dependent. Attributes values relative to product are normally contained in MIL-STD-2402 under column headed "AValue", a few exceptions are contained in the inclusion conditions.

(5) Attribute - Name of attribute category required by the feature as specified in the FACS. Attribute categories are characteristics in menu form relative to a specified feature or features.

(6) Inclusion conditions - Conditions under which the feature/attribute (s) are required by the product (e.g., RR Yard, 1N080 FAC Code, is included on a particular product only if length  $\geq 45$  m). Conditions shall be stated in Boolean logic and English.

(7) Rule - 5 digit alpha-numeric code indicating rules (listed in MIL-STD-2403 ) which specify requirements for features to satisfy final product format/requirements.

### 3.25 Magnetic Variation.

#### 3.25.1 For Series 1501 AIR.

a. Isogonic lines are shown throughout the entire graphic. Intervals on adjoining graphics shall be consistent, except that intermediate lines may be used to provide satisfactory portrayal of unusual variation patterns within the limitations specified below.

b. The lines of equal magnetic variation, extending to the graphic limits, shall normally be shown at intervals of 15 minutes. When the total isogonic difference on the graphic is large, the isogonic interval between the lines should be increased proportionately. Generally, line spacing closer than 101.60 mm is avoided and no more than four lines are shown. A minimum of two isogonic lines are shown on each graphic. When the value of the magnetic variation is the same over all areas of the graphic, isogonic lines are to be omitted and the variation value shown by a note in the margin of the graphic reading:

MAGNETIC VARIATION FOR (YEAR) IS APPROXIMATELY  
(value) OVER THE ENTIRE AREA (Annual rate of  
change - "increase" or "decrease")

c. Other magnetic variation notes and local magnetic notes shall be shown where applicable.

d. Isogonic information shall be related to 5-year epochs.  
(Example: 1990, 1995.)

#### 3.25.2 For Series 1501 (GROUND):

a. When the declination is constant over the area of the graphic, i.e., there is no variation between the west and east edges, the note reads:

MAGNETIC DECLINATION FOR (year) IS 1 1/2° (30 MILS)  
WESTERLY OVER THE ENTIRE AREA

b. When there is a variation between the west and east edges of the graphic, the note is patterned after the following:

(year) MAGNETIC DECLINATION FROM TRUE NORTH  
VARIES FROM 1 1/2° (30 MILS) WESTERLY FOR THE  
CENTER OF THE WEST EDGE TO 2° (40 MILS) WESTERLY  
FOR THE CENTER OF THE EAST EDGE

c. The note shall be related to 5-year epochs.  
(Example: 1990, 1995.)

d. The declination data is expressed to the nearest 1/2°, with Mil equivalents to the nearest 10 mils.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examination and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specifications shall become a part of the contractors overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. Visual examination (see 4.4)
- b. Review of construction records (see 4.5)

4.3 First article inspection. When a first article inspection is required (see 3.1 and 6.2), it shall be examined for defects as specified in 4.4, and the construction record reviewed for compliance with 4.5.

4.4 Visual examination. The map/chart shall be examined for defects and errors as specified by the contract or Government. Required corrections shall be made to manuscripts, drafting positives, and reproducible material before the map/chart is sent to the next production stage. Defects detected during the inspection of the printed "catch copy" shall be evaluated by DMA for criticality and suitable corrective action.

4.5 Review of construction records. Records (histories) about the construction of the map/chart shall be maintained. The records shall document sources, decisions regarding reconciliation

of conflicting data, etc. Chart records/construction histories shall be reviewed concurrently with visual examinations (see 4.4) to ensure that proper cartographic procedures have been followed.

4.6 Government furnished material. The contractor shall not duplicate, copy, or otherwise reproduce the MC&G property for purposes other than those necessary for the performance of the contract.

4.7 Government property surplus. At the completion of performance of the contract, the contractor, as directed by the contracting officer, shall either destroy or return to the Government all Government-furnished MC&G property not consumed in the performance of the contract.

## 5. PACKAGING

5.1 Packaging: General. 1:250,000 Joint Operations Graphics (JOG's) will be issued as folded stock. Unless a specific requirement exists for initial automatic distribution of flat stock to support certain agencies and users, all JOG's shall be folded and packaged as described below. Flat stock will not be available after automatic distribution.

### 5.2 Folding.

a. The map shall be folded in such a way as to display the Bar Code (lower right corner of the map margin data), any classification (when applicable). The classification is to be indicated on both the front fold (bottom margin data) and back (top margin data) of the same front fold.

b. The final folded dimensions are as follows:

184.2 mm by 279.4 mm

### 5.3 Packaging.

5.3.1 Level of protection. Packaging shall be level C (see 6.2) unless otherwise specified. This packaging provides minimum protection, and is needed to protect material under known favorable conditions. The following criteria determine the requirements for this degree of protection.

a. Use or consumption of the item at the first destination.

b. Shock, vibration, and static loading during the limited transportation cycle.

c. Favorable warehouse environment for a maximum of 18 months.

d. Effects of environmental exposure during shipment and transit delays.

e. Stacking and supporting superimposed loads during shipment and temporary storage.

5.3.2 Package size. Folded JOG's are shrink-wrapped in packages of fifty (50) copies each, 25 copies in one direction with the remaining 25 copies turned 180° from the first 25. The packages are consistent of the same map. When packaged, the top map in the package shall display the lower right corner containing the bar code, classification (when the classification is present), and any special handling notes. The back of the last folded flap (which is the top-right side of the printed side of the map that has the bar code at the bottom when folded over) shall display the classification (when the classification is present).

5.4 Marking. In addition to any special markings required by the contract or order, markings shall be in accordance with requirements of MIL-STD-129 for military levels of protection.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory).

6.1 Intended use. The 1:250,000 scale Joint Operations Graphics (JOG) program provides common-base graphics for use in operations by the ground and air forces of allied nations. The program provides for the production of a ground series (designated as 1501) and an air series (designated as 1501 AIR).

6.2 Acquisition requirement. Acquisition documents must specify the following:

a. Title, number and date of this specification.

b. Issue of the DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).

c. When a first article is required see 3.1, 4.3, and 6.3.

d. Levels of packaging (see 5.3.1).

6.3 First article. When a first article is required, it shall be inspected and approved under appropriate provisions of FAR 52.209. The contracting officer shall specify the appropriate type of first article and the number of units to be furnished in the solicitation/contract. The contracting officer shall also include specific instructions in acquisition documents regarding

arrangement for selection, inspection, and approval of the first article.

6.4 Supersession. These specifications supersede product specifications for Joint Operations Graphic Series 1501 (GROUND) and 1501 (AIR) (JOG A/G), PS/1AE/201, PS/3BB/201, Fourth Edition, November 1976 and their amendments and change notices.

#### 6.5 Definitions.

6.5.1 Circular error (CE). An accuracy figure representing the stated percentage of probability that any point expressed as a function of two linear components (e.g., horizontal position) will be within the given figure.

6.5.2 Linear error (LE). A one dimensional error (such as an error in elevation) defined by the normal distribution function.

6.6 International standardization agreements. Certain provisions of this specification are subject of international standardization agreement. When amendment, revision, or cancellation of this specification is proposed that will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels, including departmental standardization offices, to change the agreement or make other appropriate accommodation.

#### 6.6.1 International Standardization Agreements (STANAGS).

This section is not applicable to this specification.

#### 6.6.2 Quadripartite Standardization Agreements (OSTAGS).

This section is not applicable to this specification.

#### 6.6.3 Air Standardization Coordinating Committees Agreements (ASCC AIR STDs/STDs/ADV PUBs).

This section is not applicable to this specification.

#### 6.6.4 International MC&G agreements.

This section is not applicable to this specification.

#### 6.6.5 Executive orders.

This section is not applicable to this specification.

#### 6.6.6 Inter-Agency agreements.

This section is not applicable to this specification.



6.6.7 Other documentation.

This section is not applicable to this specification.

6.7 Subject term (key word) listing.

This section is not applicable to this specification.

6.8 Changes from previous issue. Margin notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:**    Culture (1)

**SUBCATEGORY:**    Extraction (1A)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1A010 MINE  
AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0007
EXS    EXISTENCE CATEGORY	G-0010
MIN    MINING CATEGORY	G-0012
NAM    NAME CATEGORY	G-0013
PRO    PRODUCT CATEGORY	L-0061
	L-3505
	L-3562
	L-4007
	L-4010
	S-1002

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

-----  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0005
EXS    EXISTENCE CATEGORY	L-0020
MIN    MINING CATEGORY	L-0061
NAM    NAME CATEGORY	L-3505
PRO    PRODUCT CATEGORY	L-4007
	L-4010

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)  
and ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1A030 QUARRY  
AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0007
EXS    EXISTENCE CATEGORY	G-0010
PRO    PRODUCT CATEGORY	G-0012
	G-0013
	L-0061
	L-3505
	L-3562

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

-----  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0005
EXS    EXISTENCE CATEGORY	L-0061
PRO    PRODUCT CATEGORY	L-3505

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Extraction (1A)

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**1A030 QUARRY (Cont.)**  
**POINT**

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) < 390,625 m square  
 and EXS (EXISTENCE CATEGORY) 6 (ABANDONED) or 28 (OPERATIONAL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1A040 RIG /SUPERSTRUCTURE**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	G-0008
HGT    HEIGHT ABOVE SURFACE LEVEL	L-0061
LMC    LANDMARK CATEGORY	L-3505
LOC    LOCATION /ORIGIN CATEGORY	L-5040
PRO    PRODUCT CATEGORY	O-3008
ZVL    Z VALUE	R-0046

Inclusion Conditions:

LOC (LOCATION/ORIGIN CATEGORY) 2 (OFF-SHORE)  
 OR HGT (HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1A050 WELL**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
EXS    EXISTENCE CATEGORY	L-0061
HYC    HYDROGRAPHIC CATEGORY	L-3505
LMC    LANDMARK CATEGORY	R-2027
NAM    NAME CATEGORY	T-0013
PRO    PRODUCT CATEGORY	V-1018
SCC    SPRING /WELL CHARACTERISTIC CATEGORY	
WFT    WELL FEATURE TYPE	

Inclusion Conditions:

PRO (PRODUCT CATEGORY) 0 (UNKNOWN) or 12 (NATURAL GAS) or 18 (OIL)  
 and EXS (EXISTENCE CATEGORY) 28 (OPERATIONAL)  
 OR PRO (PRODUCT CATEGORY) 0 (UNKNOWN) or 12 (NATURAL GAS) or 18 (OIL)  
 and EXS (EXISTENCE CATEGORY) 6 (ABANDONED)  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
 OR PRO (PRODUCT CATEGORY) 27 (WATER)  
 and HYC (HYDROGRAPHIC CATEGORY) 0 (UNKNOWN) or  
 or 6 (NON-PERENNIAL/INTERMITTENT/FLUCTUATING)  
 or 8 (PERENNIAL/PERMANENT)  
 and EXS (EXISTENCE CATEGORY) 28 (OPERATIONAL)  
 OR PRO (PRODUCT CATEGORY) 27 (WATER)  
 and EXS (EXISTENCE CATEGORY) 6 (ABANDONED)  
 and HYC (HYDROGRAPHIC CATEGORY) 3 (DRY)  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Culture (1)  
**SUBCATEGORY:**   Disposal (1B)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1B000 DISPOSAL SITE /WASTE PILE**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
PRO    PRODUCT CATEGORY	G-0010
	G-0012
	L-0061
	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1C000 PROCESSING PLANT /TREATMENT PLANT**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
LMC    LANDMARK CATEGORY	G-0010
NAM    NAME CATEGORY	G-0012
PRO    PRODUCT CATEGORY	L-0061
WID    WIDTH	L-3505
	L-4010

Inclusion Conditions:

WID(WIDTH) >= 200 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

-----  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
AOO    ANGLE OF ORIENTATION	L-0020
LMC    LANDMARK CATEGORY	L-0061
NAM    NAME CATEGORY	L-3505
PRO    PRODUCT CATEGORY	L-4010
WID    WIDTH	

Inclusion Conditions:

WID(WIDTH) < 200 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1C030 SETTLING BASIN /SLUDGE POND**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
WID    WIDTH	G-0012
	L-3505
	R-2002

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Processing Industry (1C)

---

**1C030: SETTLING BASIN /SLUDGE POND (Cont.)**  
**AREA**

Inclusion Conditions:

WID(WIDTH) >= 200 m  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1D010 POWER PLANT FACILITY**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0010
LMC    LANDMARK CATEGORY	G-0012
NAM    NAME CATEGORY	L-3505
PPC    POWER PLANT CATEGORY	L-4011

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and ARA(AREA COVERAGE CATEGORY) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1F010 CHIMNEY /SMOKESTACK**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	D-7019
HGT    HEIGHT ABOVE SURFACE LEVEL	L-3505
LMC    LANDMARK CATEGORY	L-5040
ZVL    Z VALUE	O-3008
	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1F020 CONVEYOR**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
	L-3505
	R-0006

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,500 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1F030 COOLING TOWER**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	L-3505
HGT    HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC    LANDMARK CATEGORY	O-3008
ZVL    Z VALUE	R-0046

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Associated Industrial Structures (1F)

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**1F030 COOLING TOWER (Cont.)****POINT**AttributesPG RulesInclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1F040 CRANE****POINT**AttributesPG Rules

COE    CERTAINTY OF EXISTENCE  
 HGT    HEIGHT ABOVE SURFACE LEVEL  
 ZVL    Z VALUE

L-3505  
 L-5040  
 O-3008  
 R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 10 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1F070 FLARE PIPE****POINT**AttributesPG Rules

COE    CERTAINTY OF EXISTENCE  
 HGT    HEIGHT ABOVE SURFACE LEVEL  
 LOC    LOCATION /ORIGIN CATEGORY  
 ZVL    Z VALUE

L-3505  
 L-5040  
 O-3008  
 R-0046

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)  
 OR LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1H050 FORT****AREA**AttributesPG Rules

LMC    LANDMARK CATEGORY  
 NAM    NAME CATEGORY  
 WID    WIDTH

G-0010  
 G-0012  
 L-3505

Inclusion Conditions:

WID(WIDTH) >= 325 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**POINT**AttributesPG Rules

AOO    ANGLE OF ORIENTATION  
 LEN    LENGTH /DIAMETER  
 LMC    LANDMARK CATEGORY  
 NAM    NAME CATEGORY  
 WID    WIDTH

L-0020  
 L-3505  
 L-3516

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Institutional /Governmental (1H)

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**1H050 FORT (Cont.)**  
**POINT**

Inclusion Conditions:

WID(WIDTH) < 325 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1J050 WINDMILL /WINDMOTOR**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
HGT HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC LANDMARK CATEGORY	O-3008
ZVL Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1K020 AMUSEMENT PARK ATTRACTION**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
APS AMUSEMENT PARK STRUCTURE	L-3505
COE CERTAINTY OF EXISTENCE	L-5040
HGT HEIGHT ABOVE SURFACE LEVEL	O-3008
ZVL Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 10 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1K120 PARK**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0006
NAM NAME CATEGORY	L-0050
USE USE STATUS	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and USE(USE STATUS) 4(NATIONAL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1K130 RACE TRACK**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LMC LANDMARK CATEGORY	G-0012
NAM NAME CATEGORY	L-3505

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**TABLE I**                    Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:     JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY:     Culture (1)  
 SUBCATEGORY:     Recreational (1K)

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**1K130 RACE TRACK (Cont.)**  
**LINE**

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1K150 SKI JUMP**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	L-3505
HGT    HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC    LANDMARK CATEGORY	O-3008
ZVL    Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1K160 STADIUM**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	C-0022
HGT    HEIGHT ABOVE SURFACE LEVEL	L-0020
LMC    LANDMARK CATEGORY	L-3505
NAM    NAME CATEGORY	L-5040
ZVL    Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1L015 BUILDING**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
BFC    BUILDING FUNCTION CATEGORY	D-1652
HGT    HEIGHT ABOVE SURFACE LEVEL	G-0012
LMC    LANDMARK CATEGORY	L-0020
NAM    NAME CATEGORY	L-3505
WID    WIDTH	O-3008
	O-3009
	R-0046

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Miscellaneous Features (1L)

**1L015 BUILDING (Cont.)**  
**AREA**

Inclusion Conditions:

WID(WIDTH) >= 125 m  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	C-0022	O-3009
AOO ANGLE OF ORIENTATION	D-1652	R-0046
BFC BUILDING FUNCTION CATEGORY	L-0020	R-2024
COE CERTAINTY OF EXISTENCE	L-3505	R-2025
EXS EXISTENCE CATEGORY	L-5040	R-2026
HGT HEIGHT ABOVE SURFACE LEVEL	O-3008	R-2170
HWT HOUSE OF WORSHIP TYPE		
LMC LANDMARK CATEGORY		
NAM NAME CATEGORY		
TUC TRANSPORTATION USE CATEGORY		
WID WIDTH		
ZVL Z VALUE		

Inclusion Conditions:

WID(WIDTH) < 125 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 OR HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR BFC(BUILDING FUNCTION CATEGORY) 27(PASSENGER TERMINAL)  
 and TUC(TRANSPORTATION USE CATEGORY) 3(RAILROAD)

~~\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A~~

**1L020 BUILT-UP AREA**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0006	L-3611	R-2333
EXS EXISTENCE CATEGORY	G-0010	L-3612	R-2526
	G-0012	R-0029	R-3730
	L-0020	R-2002	R-3733
	L-3505	R-2019	T-0002
	L-3514	R-2021	T-0003
	L-3515	R-2023	T-0012
	L-3610	R-2178	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	L-0020
EXS EXISTENCE CATEGORY	L-3505
	L-3514
	R-2025
	R-2179

TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
CATEGORY: Culture (1)  
SUBCATEGORY: Miscellaneous Features (1L)

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11020 BUILT-UP AREA (Cont.)  
POINT

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

11025 CAIRN  
POINT

Attributes

LMC LANDMARK CATEGORY

PG Rules

-None

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

11070 FENCE  
LINE

Attributes

LEN LENGTH /DIAMETER  
LMC LANDMARK CATEGORY

PG Rules

G-0012  
R-0006

Inclusion Conditions:

LEN (LENGTH/DIAMETER) >= 1,500 m  
and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

11085 GEOPHYSICAL PROSPECTING GRID  
LINE

Attributes

LEN LENGTH /DIAMETER

PG Rules

G-0012  
L-3505  
L-3630  
R-0006

Inclusion Conditions:

LEN (LENGTH/DIAMETER) >= 1,250 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

11100 HUT  
POINT

Attributes

LMC LANDMARK CATEGORY

PG Rules

L-3505

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:** Culture (1)

**SUBCATEGORY:** Miscellaneous Features (1L)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**11130 MONUMENT  
POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-0020
HGT HEIGHT ABOVE SURFACE LEVEL	L-3505
LMC LANDMARK CATEGORY	L-5040
NAM NAME CATEGORY	O-3008
SSC STRUCTURE SHAPE CATEGORY	R-0046
ZVL Z VALUE	

Inclusion Conditions:

SSC(STRUCTURE SHAPE CATEGORY) 12(PYRAMID) or 76(ARCH) or 77(OBELISK) or 79(OTHER)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR SSC(STRUCTURE SHAPE CATEGORY) 12(PYRAMID) or 76(ARCH) or 77(OBELISK) or 79(OTHER)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**11135 NATIVE SETTLEMENT  
AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
NAS NATIVE SETTLEMENT TYPE	G-0012
	R-2526
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
and NAS(NATIVE SETTLEMENT TYPE) 2(CONTINUOUS HABITATION)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**11140 NUCLEAR ACCELERATOR  
POINT**

<u>Attributes</u>	<u>PG Rules</u>
LMC LANDMARK CATEGORY	L-3505

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**11160 PIPELINE /PIPE  
LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	D-7017
EXS EXISTENCE CATEGORY	G-0012
LEN LENGTH /DIAMETER	L-0061
LMC LANDMARK CATEGORY	L-3517
LOC LOCATION /ORIGIN CATEGORY	L-3521
PRO PRODUCT CATEGORY	L-4260
	R-2031
	R-2180

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Miscellaneous Features (1L)

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**1L160 PIPELINE /PIPE (Cont.)**  
**LINE**

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and LEN(LENGTH/DIAMETER) >= 1,250 m  
 and LOC(LOCATION/ORIGIN CATEGORY) 1(BELOW GROUND SURFACE) or 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and PRO(PRODUCT CATEGORY) 0(UNKNOWN) or 6(CHEMICAL) or 12(NATURAL GAS) or 13(GASOLINE) or 18(OIL) or 27(WATER)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1L180 PUMPING STATION**  
**POINT**

<u>Attributes</u>		<u>PG Rules</u>
AOO	ANGLE OF ORIENTATION	G-0008
PRO	PRODUCT CATEGORY	L-0061
		L-3505
		R-2240

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1L200 RUINS**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0006
LOC	LOCATION /ORIGIN CATEGORY	G-0012
		L-0050
		L-3505
		L-3509
		R-2333

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

**POINT**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	C-0022
LMC	LANDMARK CATEGORY	L-3505
LOC	LOCATION /ORIGIN CATEGORY	

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
 and ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

TABLE I                    Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:     JOINT OPERATIONS GRAPHICS - 1501 AIR

CATEGORY:     Culture (1)

SUBCATEGORY:     Miscellaneous Features (1L)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

1L208   SHANTY TOWN

AREA

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

G-0006

G-0010

G-0012

L-0050

R-0029

R-2002

PG Rules

R-2019

R-2179

R-2333

R-2526

R-3730

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

1L210   SNOW SHED /ROCK SHED

LINE

Attributes

LEN    LENGTH /DIAMETER

SIT    SHED IDENTIFIER TYPE

WID    WIDTH

PG Rules

G-0012

L-3505

R-2254

X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 300 m

-----  
POINT

Attributes

LEN    LENGTH /DIAMETER

SIT    SHED IDENTIFIER TYPE

WID    WIDTH

PG Rules

C-0023

G-0008

L-3505

X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 300 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

1L240   TOWER (NON- COMMUNICATION)

POINT

Attributes

COE    CERTAINTY OF EXISTENCE

HGT    HEIGHT ABOVE SURFACE LEVEL

LMC    LANDMARK CATEGORY

TTC    TOWER TYPE CATEGORY

ZVL    Z VALUE

PG Rules

L-3505

L-5040

O-3008

R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:**    Culture (1)

**SUBCATEGORY:**    Miscellaneous Features (1L)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1L260 WALL**

**LINE**

Attributes

LEN    LENGTH /DIAMETER  
LMC    LANDMARK CATEGORY

PG Rules

G-0012  
L-3610  
R-0009  
R-2178  
R-2179

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,250 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1M030 GRAIN ELEVATOR**

**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE  
HGT    HEIGHT ABOVE SURFACE LEVEL  
LMC    LANDMARK CATEGORY  
ZVL    Z VALUE

PG Rules

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1M050 SILO**

**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE  
HGT    HEIGHT ABOVE SURFACE LEVEL  
LMC    LANDMARK CATEGORY  
ZVL    Z VALUE

PG Rules

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1M070 TANK**

**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE  
HGT    HEIGHT ABOVE SURFACE LEVEL  
LMC    LANDMARK CATEGORY  
LOC    LOCATION /ORIGIN CATEGORY  
PRO    PRODUCT CATEGORY  
WID    WIDTH  
ZVL    Z VALUE

PG Rules

D-1652  
L-0061  
L-3505  
L-3519  
L-4010  
L-4016  
L-5040  
O-3008  
R-0046  
R-2027

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Storage (1M)

**1M070 TANK (Cont.)**  
**POINT**

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1M080 WATER TOWER**  
**POINT**

<u>Attributes</u>		<u>PG Rules</u>
COE	CERTAINTY OF EXISTENCE	L-3505
HGT	HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC	LANDMARK CATEGORY	O-3008
ZVL	Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1M010 RAILROAD TRACK**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC	ACCURACY CATEGORY	D-1501	L-4284
EXS	EXISTENCE CATEGORY	D-1650	L-3622
GAW	GAUGE WIDTH	D-7029	L-3631
LOC	LOCATION /ORIGIN CATEGORY	D-7030	L-3632
LTN	LANE/TRACK NUMBER	G-0012	L-3633
NAM	NAME CATEGORY	L-3614	L-3634
RGC	RAILROAD GAUGE CATEGORY	L-3615	L-3635
RPS	RAILROAD POWER SOURCE	L-3616	L-3636
RRC	RAILROAD /ROAD CATEGORIES	L-3617	L-3637
		L-3618	L-3638
		L-3619	L-3649
		L-3620	S-7030

Inclusion Conditions:

RGC(RAILROAD GAUGE CATEGORY) 1(BROAD) or 3(NORMAL (STANDARD))  
 and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and RRC(RAILROAD/ROAD CATEGORIES) 1(MAIN LINE/BRANCH LINE)  
 and LTN(LANE/TRACK NUMBER) >= 1  
 OR RGC(RAILROAD GAUGE CATEGORY) 2(NARROW)  
 and LOC 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and RRC(RAILROAD/ROAD CATEGORIES) 3(MONORAIL) or 8(LOGGING)  
 and GAW(GAUGE WIDTH) >= 0.05 m  
 and LTN(LANE/TRACK NUMBER) >= 1  
 OR RRC(RAILROAD/ROAD CATEGORIES) 2(CAR-LINE)  
 and LOC 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 OR RRC(RAILROAD/ROAD CATEGORIES) 13(MARINE RAILROAD) or 14(RAILROAD IN ROAD)  
 and EXS(EXISTENCE CATEGORY) 5(UNDER CONSTRUCTION) or 6(ABANDONED) or 28(OPERATIONAL)  
 and LOC 3(ON GROUND SURFACE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:**     Culture (1)

**SUBCATEGORY:**     Transportation R/R (1N)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1N050 RR SIDING /RR SPUR**

**LINE**

Attributes

LEN    LENGTH /DIAMETER  
LTN    LANE/TRACK NUMBER  
RGC    RAILROAD GAUGE CATEGORY  
RPS    RAILROAD POWER SOURCE  
RSA    RAIL SIDING /SPUR ATTRIBUTE

PG Rules

D-7028  
G-0012  
L-3505  
L-3630  
L-3634  
L-4284

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,250 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1N080 RR YARD**

**AREA**

Attributes

EXS    EXISTENCE CATEGORY  
LEN    LENGTH /DIAMETER  
LTN    LANE/TRACK NUMBER

PG Rules

G-0006  
G-0010  
G-0012  
O-0001  
O-0002

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,600 m  
and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1N090 TRAMWAY /INCLINE RAILWAY**

**LINE**

Attributes

LOC    LOCATION /ORIGIN CATEGORY

PG Rules

G-0012  
L-3630

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1P010 CART TRACK**

**LINE**

Attributes

ACC    ACCURACY CATEGORY  
LEN    LENGTH /DIAMETER  
TUC    TRANSPORTATION USE CATEGORY  
WTC    ROUTE WEATHERABILITY CATEGORY

PG Rules

D-1652  
G-0012  
O-0004  
R-0003  
R-2186  
R-2187



**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY: Culture (1)  
 SUBCATEGORY: Transportation /Roads (1P)

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**1P010 CART TRACK (Cont.)**  
**LINE**

Inclusion Conditions:

WTC(ROUTE WEATHERABILITY CATEGORY) 2(FAIR/DRY WEATHER)  
 and LEN(LENGTH/DIAMETER) >= 1,250 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1P020 INTERCHANGE**  
**LINE**

Attributes

LEN LENGTH /DIAMETER  
 RST ROAD/RUNWAY SURFACE TYPE  
 USE USE STATUS  
 WTC ROUTE WEATHERABILITY CATEGORY

PG Rules

-None

Inclusion Conditions:

USE(USE STATUS) 50(LIMITED ACCESS)  
 and RST(ROAD/RUNWAY SURFACE TYPE) 1(HARD SURFACE)  
 and WTC(ROUTE WEATHERABILITY CATEGORY) 1(ALL WEATHER)  
 and LEN(LENGTH/DIAMETER) >= 625 m

**POINT**

Attributes

AOO ANGLE OF ORIENTATION  
 LEN LENGTH /DIAMETER  
 RST ROAD/RUNWAY SURFACE TYPE  
 USE USE STATUS  
 WTC ROUTE WEATHERABILITY CATEGORY

PG Rules

G-0012  
 R-2233.

Inclusion Conditions:

USE(USE STATUS) 50(LIMITED ACCESS)  
 and LEN(LENGTH/DIAMETER) < 625 m  
 and WTC(ROUTE WEATHERABILITY CATEGORY) 1(ALL WEATHER)  
 and RST(ROAD/RUNWAY SURFACE TYPE) 1(HARD SURFACE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1P030 ROAD**  
**LINE**

Attributes

ACC ACCURACY CATEGORY  
 EXS EXISTENCE CATEGORY  
 LEN LENGTH /DIAMETER  
 LOC LOCATION /ORIGIN CATEGORY  
 LTN LANE/TRACK NUMBER  
 MED MEDIAN CATEGORY  
 MWD MEDIAN WIDTH  
 NAM NAME CATEGORY  
 RST ROAD/RUNWAY SURFACE TYPE  
 TUC TRANSPORTATION USE CATEGORY  
 WTC ROUTE WEATHERABILITY CATEGORY

PG Rules

D-1510  
 D-1652  
 D-7027  
 G-0012  
 L-3600  
 L-3602  
 L-3622  
 L-3635  
 L-3639  
 L-3640

PG Rules

L-3649  
 L-3955  
 L-4016  
 L-5015  
 O-0004  
 O-0026  
 O-3010  
 R-0060  
 R-2172

PG Rules

R-2175  
 R-2176  
 R-2181  
 R-2182  
 R-2185  
 R-2186  
 R-2188  
 R-2189  
 S-1010

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**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Culture (1)  
**SUBCATEGORY:**     Transportation /Roads (1P)

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**1P030 ROAD (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 300 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1P050 TRAIL**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
TUC    TRANSPORTATION USE CATEGORY	D-1652	O-0004
WTC    ROUTE WEATHERABILITY CATEGORY	G-0012	R-0002
	L-3603	R-0003
	L-3604	R-2177
	L-3630	R-2186
	L-4033	R-2187

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1Q010 AERIAL CABLEWAY LINE /SKI LIFT LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
LMC    LANDMARK CATEGORY	L-3568
USE    USE STATUS	L-3630

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,500 m  
OR LEN(LENGTH/DIAMETER) < 1,500 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1Q040 BRIDGE /OVERPASS /VIADUCT**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
BOT    BRIDGE OPENING TYPE	C-0008
BVC    BRIDGE/VIADUCT CATEGORY	G-0012
EXS    EXISTENCE CATEGORY	L-3505
LEN    LENGTH /DIAMETER	L-4008
NAM    NAME CATEGORY	
OHB    OVERALL HEIGHT OF BRIDGE	
TUC    TRANSPORTATION USE CATEGORY	
ZVL    Z VALUE	

Inclusion Conditions:

TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(RAILROAD) or 4(ROAD) or 17(PEDESTRIAN) or 19(AQUEDUCT) or 20(CANAL)  
and LEN(LENGTH/DIAMETER) >= 125 m

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TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
CATEGORY: Culture (1)  
SUBCATEGORY: Associated Transportation (1Q)

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1Q040 BRIDGE /OVERPASS /VIADUCT (Cont.)  
POINT

<u>Attributes</u>	<u>PG Rules</u>
BVC BRIDGE/VIADUCT CATEGORY	C-0006
COE CERTAINTY OF EXISTENCE	C-0007
EXS EXISTENCE CATEGORY	L-3505
LEN LENGTH /DIAMETER	L-4008
NAM NAME CATEGORY	L-5040
OHB OVERALL HEIGHT OF BRIDGE	
TUC TRANSPORTATION USE CATEGORY	
ZVL Z VALUE	

Inclusion Conditions:

TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(RAILROAD) or 4(ROAD) or 19(AQUEDUCT)  
or 20(CANAL)  
and LEN(LENGTH/DIAMETER) < 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

1Q050 BRIDGE SUPERSTRUCTURE  
POINT

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
OHB OVERALL HEIGHT OF BRIDGE	L-5040
ZVL Z VALUE	

Inclusion Conditions:

OHB(OVERALL HEIGHT OF BRIDGE) >= 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

1Q060 CONTROL TOWER  
POINT

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
HGT HEIGHT ABOVE SURFACE LEVEL	L-5040
ZVL Z VALUE	O-3008
	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 10 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

1Q070 FERRY CROSSING  
LINE

<u>Attributes</u>	<u>PG Rules</u>
FCL FERRY CROSSING LENGTH	G-0012
NAM NAME CATEGORY	L-3505
	L-3630
	R-2232
	R-7193

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Associated Transportation (1Q)

**1Q070 FERRY CROSSING (Cont.)**  
**LINE**

Inclusion Conditions:

FCL(FERRY CROSSING LENGTH) >= 125 m

**POINT**

Attributes

FCL    FERRY CROSSING LENGTH  
 NAM    NAME CATEGORY

PG Rules

L-3505  
 R-2232

Inclusion Conditions:

FCL(FERRY CROSSING LENGTH) < 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1Q110 MOORING MAST**  
**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE  
 HGT    HEIGHT ABOVE SURFACE LEVEL  
 ZVL    Z VALUE

PG Rules

L-3505  
 L-5040  
 O-3008  
 R-0046

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1Q116 ROUTE MARKER**  
**POINT**

Attributes

NAM    NAME CATEGORY  
 TUC    TRANSPORTATION USE CATEGORY  
 USE    USE STATUS

PG Rules

R-2181  
 R-2182

Inclusion Conditions:

USE(USE STATUS) 4(NATIONAL) or 5(STATE) or 23(INTERNATIONAL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1Q131 TUNNEL**  
**LINE**

Attributes

LEN    LENGTH /DIAMETER  
 NAM    NAME CATEGORY  
 TRA    TRAVERSABILITY ATTRIBUTE  
 TUC    TRANSPORTATION USE CATEGORY  
 WID    WIDTH

PG Rules

L-3505  
 L-3630

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Associated Transportation (1Q)

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**1Q131 TUNNEL (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 315 m

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	C-0020
NAM    NAME CATEGORY	L-3505
TRA    TRAVERSABILITY ATTRIBUTE	R-2227
TUC    TRANSPORTATION USE CATEGORY	
WID    WIDTH	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 315 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1R010 AIRSPACE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
AUA    ATS USE ATTRIBUTE	G-0010
NAM    NAME CATEGORY	G-0012
	L-0025

Inclusion Conditions:

AUA(ATS USE ATTRIBUTE) 2(AIR DEFENSE IDENTIFICATION ZONE (ADI2))  
 or 6(BUFFER ZONE (BZ)) or 54(NON-FREE FLYING AREA) or 76(CORRIDORS ASSOCIATED WITH THE BERLIN CONTROL)

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**LINE**

<u>Attributes</u>	<u>PG Rules</u>
AUA    ATS USE ATTRIBUTE	G-0012
NAM    NAME CATEGORY	L-0018
	L-0021

Inclusion Conditions:

AUA(ATS USE ATTRIBUTE) 2(AIR DEFENSE IDENTIFICATION ZONE (ADI2))  
 or 6(BUFFER ZONE (BZ)) or 54(NON-FREE FLYING AREA) or 76(CORRIDORS ASSOCIATED WITH THE BERLIN CONTROL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1R030 HAVAIDS (AERONAUTICAL)**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	L-0021
HGT    HEIGHT ABOVE SURFACE LEVEL	L-3505
LOC    LOCATION /ORIGIN CATEGORY	L-5040
NAM    NAME CATEGORY	L-7051
NST    RADIO NAVIGATION /COMMUNICATION	O-0021
VAC    VISUAL AIDS CATEGORY	
ZVL    Z VALUE	

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Air Traffic Services (1R)

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**1R030 HAVAIDS (AERONAUTICAL) (Cont.)**  
**POINT**

Inclusion Conditions:

NST(RADIO NAVIGATION/COMMUNICATION) or 12(RADIO) or 17(NON-DIRECTIONAL RADIO BEACON (NDB) or 18(NDB/DME) or 20(VOR OMNIRANGE) or 21(VOR/DME) or 22(VORTAC OMNIRANGE) or 23(TACAN) and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1T010 DISK**  
**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE  
HGT    HEIGHT ABOVE SURFACE LEVEL  
LMC    LANDMARK CATEGORY  
ZVL    Z VALUE

PG Rules

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR    HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
and    LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1T030 POWER TRANSMISSION LINE**  
**LINE**

Attributes

ACC    ACCURACY CATEGORY  
LEN    LENGTH /DIAMETER  
TST    TRANSMISSION LINE SUSPENSION TYPE

PG Rules

D-7020  
G-0012  
L-4012  
R-0007  
R-2492  
R-7289

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1T040 POWER TRANSMISSION PYLON**  
**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE  
HGT    HEIGHT ABOVE SURFACE LEVEL  
ZVL    Z VALUE

PG Rules

L-3505  
L-5040  
O-3008  
R-0046

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Communication /Transmission (1T)

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**1T040 POWER TRANSMISSION PYLON (Cont.)  
POINT**

Inclusion Conditions:

HGT(HEIGHT/DIAMETER) >= 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1T050 COMMUNICATIONS FACILITY  
AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	L-3505
NAM	NAME CATEGORY	L-4008
NST	RADIO NAVIGATION /COMMUNICATION	L-4813

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1T060 TELEPHONE LINE /TELEGRAPH LINE  
LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	D-7015
LMC	LANDMARK CATEGORY	G-0012
TEL	TELECOMMUNICATIONS TYPE	L-3630
		R-0008
		T-0014

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,600 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**1T080 TOWER (COMMUNICATION)  
POINT**

<u>Attributes</u>		<u>PG Rules</u>
COE	CERTAINTY OF EXISTENCE	D-1652
HGT	HEIGHT ABOVE SURFACE LEVEL	L-3505
LMC	LANDMARK CATEGORY	L-5040
NAM	NAME CATEGORY	O-3008
NST	RADIO NAVIGATION /COMMUNICATION	R-0046
ZVL	Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:**     Culture (1)

**SUBCATEGORY:**     Airports (1U)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**10025 AIRCRAFT LANDING PAD**

**POINT**

Attributes

AFT AIRCRAFT FACILITY TYPE  
NAM NAME CATEGORY  
USE USE STATUS

PG Rules

L-3505

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) 2(HELIPORT)  
and USE(USE STATUS) 10(OTHER) or 43(HOSPITAL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**10030 AIRCRAFT FACILITY**

**POINT**

Attributes

AFT AIRCRAFT FACILITY TYPE  
COD CERTAINTY OF DELINEATION  
EXS EXISTENCE CATEGORY  
NAM NAME CATEGORY  
USE USE STATUS  
ZVL Z VALUE

PG Rules

L-0001  
L-3505  
R-0039  
R-0040  
R-0041  
R-0042  
R-0044  
R-0047  
R-7293

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) 0(UNKNOWN) or 1(AIRPORT) or 4(UNDEFINED LANDING AREA)  
and EXS(EXISTENCE CATEGORY) 3(REPORTED) or 6(ABANDONED) or 9(NOT USABLE) or 27(CLOSED) or 28(OPERATIONAL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**10040 AIRCRAFT FACILITY BEACON**

**POINT**

Attributes

LFA LIGHT FUNCTION ATTRIBUTE

PG Rules

G-0008  
L-3505  
R-0051

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**10130 OVERRUN /STOPWAY**

**LINE**

Attributes

LEN LENGTH /DIAMETER

PG Rules

O-6201  
R-6060



**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Airports (1U)

**10130 OVERRUN /STOPWAY (Cont.)**  
**LINE**

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**10160 RUNWAY**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
EXS EXISTENCE CATEGORY	G-0012
LEN LENGTH /DIAMETER	L-0002
RPF RUNWAY PATTERN FORMATION	L-0041
RST ROAD/RUNWAY SURFACE TYPE	L-0042
ZVL Z VALUE	L-3505
	L-7050
	R-0045
	R-7293

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 457 m (1500 feet)  
 and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 9(NOT USABLE) or 27(CLOSED) or 28(OPERATIONAL)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
AOO ANGLE OF ORIENTATION	G-0008
EXS EXISTENCE CATEGORY	L-0002
LEN LENGTH /DIAMETER	L-0041
RPF RUNWAY PATTERN FORMATION	L-0042
RST ROAD/RUNWAY SURFACE TYPE	L-3505
ZVL Z VALUE	L-7050
	R-7293

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 457 m (1500 feet)  
 and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 9(NOT USABLE) or 27(CLOSED) or 28(OPERATIONAL)  
 OR EXS(EXISTENCE CATEGORY) 0(UNKNOWN)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2A010 COASTAL SHORELINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	G-0012
SLT SHORELINE TYPE CATEGORY	G-0013
VDC VERTICAL DATUM CATEGORY	O-3005
	R-2000
	R-2002
	R-2022
	R-2023
	R-2316
	X-8106

TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
CATEGORY: Hydrography (2)  
SUBCATEGORY: Coastal Hydro (2A)

---

2A010 COASTAL SHORELINE (Cont.)  
LINE

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2A020 FORESHORE  
AREA

Attributes

ARA AREA COVERAGE ATTRIBUTE  
WID WIDTH

PG Rules

G-0006  
G-0010  
G-0012

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
and WID(WIDTH) >= 315 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2A040 OPEN WATER (EXCEPT INLAND)  
AREA

Attributes

ARA AREA COVERAGE ATTRIBUTE

PG Rules

G-0010  
G-0012  
G-0013  
L-3505  
L-3506  
R-2316  
R-3708

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2B040 BREAKWATER  
LINE

Attributes

LEN LENGTH /DIAMETER  
VRC VERTICAL REFERENCE CATEGORY  
WID WIDTH

PG Rules

G-0012

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))  
and LEN(LENGTH/DIAMETER) >= 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2B140 JETTY  
LINE

Attributes

LEN LENGTH /DIAMETER  
VRC VERTICAL REFERENCE CATEGORY  
WID WIDTH

PG Rules

G-0012

---

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Ports and Harbors (2B)

---

**2B140 JETTY (Cont.)**  
**LINE**

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 1 (ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8 (COVERS AND UNCOVERS)  
 and LEN (LENGTH/DIAMETER) >= 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2B190 PIER, WHARF**  
**AREA**

Attributes  
 WID WIDTH

PG Rules  
 G-0012

Inclusion Conditions:

WID (WIDTH) >= 125 m

---

**LINE**

Attributes  
 LEN LENGTH /DIAMETER  
 WID WIDTH

PG Rules  
 G-0012

Inclusion Conditions:

WID (WIDTH) < 125 m  
 and LEN (LENGTH/DIAMETER) >= 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2B230 SEAWALL**  
**LINE**

Attributes  
 LEN LENGTH /DIAMETER

PG Rules  
 G-0012

Inclusion Conditions:

LEN (LENGTH/DIAMETER) >= 625 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2C050 LIGHT**  
**POINT**

Attributes  
 COL CHARACTER OF LIGHT  
 LMC LANDMARK CATEGORY  
 LVR LIGHT VISIBILITY RANGE

PG Rules  
 L-3505

Inclusion Conditions:

LVR (LIGHT VISIBILITY RANGE) >= 5  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:**      Hydrography (2)

**SUBCATEGORY:**      Dangers and Underwater Features (2D)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2D120 REEF**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
COD    CERTAINTY OF DELINEATION  
MCP    MATERIAL COMPOSITION PRIMARY  
NAM    NAME CATEGORY  
VRC    VERTICAL REFERENCE CATEGORY

PG Rules

G-0006  
G-0010  
G-0012  
L-3505  
L-3506  
R-3708

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 2(AWASH AT SOUNDING DATUM) or 8(COVERS AND UNCOVERS)  
and COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

**LINE**

Attributes

COD    CERTAINTY OF DELINEATION  
LEN    LENGTH /DIAMETER  
MCP    MATERIAL COMPOSITION PRIMARY  
NAM    NAME CATEGORY  
VRC    VERTICAL REFERENCE CATEGORY

PG Rules

G-0012  
L-3630

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 2(AWASH AT SOUNDING DATUM) or 8(COVERS AND UNCOVERS)  
and COD(CERTAINTY OF DELINEATION) 1(LIMITS AND INFO KNOWN)  
and ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2D125 REEF POOL**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

G-0006  
G-0010  
G-0012

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2D130 ROCK**

**POINT**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
HDI    HYDROGRAPHIC DEPTH /HEIGHT INFORMATION  
MCP    MATERIAL COMPOSITION PRIMARY  
NAM    NAME CATEGORY  
VRC    VERTICAL REFERENCE CATEGORY

PG Rules

G-0005  
L-3505  
T-0836

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Hydrography (2)  
**SUBCATEGORY:**     Dangers and Underwater Features (2D)

---

**2D130 ROCK (Cont.)**  
**POINT**

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 2 (AWASH AT SOUNDING DATUM) or 8 (COVERS AND UNCOVERS)  
 and MCP (MATERIAL COMPOSITION PRIMARY) 19 (CORAL) or 66 (ROCK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2D180 WRECK**  
**POINT**

Attributes

EPA    EXPOSED PORTION ATTRIBUTE  
 LMC    LANDMARK CATEGORY  
 VRC    VERTICAL REFERENCE CATEGORY

PG Rules

-None

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 1 (ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
 and EPA (EXPOSED PORTION ATTRIBUTE) 1 (MAST) or 2 (FUNNEL) or 3 (SUPERSTRUCTURE) or 4 (HULL)  
 or     5 (MAST AND FUNNEL)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2E015 DEPTH CONTOUR**  
**LINE**

Attributes

ACC    ACCURACY CATEGORY  
 CRV    DEPTH CURVE OR CONTOUR VALUE  
 UNI    UNITS CATEGORY

PG Rules

L-3576

Inclusion Conditions:

CRV (DEPTH CURVE OR CONTOUR VALUE) = 600 ft  
 and UNI (UNITS CATEGORY) 5 (FATHOMS) or 6 (FEET)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2G010 CURRENT ARROW /FLOW ARROW**  
**POINT**

Attributes

CUR    CURRENT TYPE CATEGORY  
 DOF    DIRECTION OF FLOW

PG Rules

C-0014  
 R-0031  
 R-2034  
 R-2168

Inclusion Conditions:

CUR (CURRENT TYPE CATEGORY) 4 (RIVER FLOW)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H010 AQUEDUCT**  
**LINE**

Attributes

ATC    AQUEDUCT TYPE CATEGORY  
 EXS    EXISTENCE CATEGORY  
 LEN    LENGTH /DIAMETER  
 LOC    LOCATION /ORIGIN CATEGORY  
 WID    WIDTH

PG Rules

D-1654  
 G-0012  
 L-3518  
 L-3521  
 L-3630

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

---

**2H010 AQUEDUCT (Cont.)**  
**LINE**

Attributes

PG Rules

L-3641  
R-2002  
R-2031  
R-2433

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 625 m  
and ATC(AQUEDUCT TYPE CATEGORY) 2(OTHER) or 3(QANAT/KANAT/KAREZ TUNNEL)

---

**POINT**

Attributes

PG Rules

ATC    AQUEDUCT TYPE CATEGORY  
LOC    LOCATION /ORIGIN CATEGORY

D-1654  
R-0034  
R-0035

Inclusion Conditions:

ATC(AQUEDUCT TYPE CATEGORY) 1(QANAT/KANAT/KAREZ MAINTENANCE SHAFT)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H020 CANAL**  
**LINE**

Attributes

PG Rules

EXS    EXISTENCE CATEGORY  
HYC    HYDROGRAPHIC CATEGORY  
LEN    LENGTH /DIAMETER  
NAM    NAME CATEGORY  
WID    WIDTH

L-3513  
L-3630  
L-3650  
O-0006  
R-2002  
R-2016

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 8(PERENNIAL/PERMANENT)  
and LEN(LENGTH/DIAMETER) >= 2,500 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H030 DITCH**  
**LINE**

Attributes

PG Rules

HYC    HYDROGRAPHIC CATEGORY  
LEN    LENGTH /DIAMETER  
WID    WIDTH

D-1652  
D-1653  
L-3630  
O-0006  
R-2002  
R-2016  
R-2116  
R-2117  
R-7294

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

---

**2H030 DITCH (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 2,500 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H040 FILTRATION /AERATION BEDS**  
**AREA**

Attributes  
 LMC    LANDMARK CATEGORY  
 WID    WIDTH

PG Rules  
 G-0012  
 L-3505  
 L-3506  
 L-3509  
 R-2002

Inclusion Conditions:

WID(WIDTH) >= 315 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H050 FISH HATCHERY**  
**AREA**

Attributes  
 LMC    LANDMARK CATEGORY  
 WID    WIDTH

PG Rules  
 G-0006  
 G-0012  
 L-3505

Inclusion Conditions:

WID(WIDTH) >= 375 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H060 FLUME**  
**LINE**

Attributes  
 LEN    LENGTH /DIAMETER  
 LOC    LOCATION /ORIGIN CATEGORY

PG Rules  
 G-0012  
 L-3508  
 L-3630  
 L-3641

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 315 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H070 FORD**  
**LINE**

Attributes  
 LEN    LENGTH /DIAMETER

PG Rules  
 G-0012  
 L-3505  
 L-3630  
 R-0002  
 R-2232  
 R-3902

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

---

**2H070 FORD (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 125 m

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**POINT**

Attributes

LEN    LENGTH /DIAMETER

PG Rules

G-0008  
L-3505  
O-3005  
R-2232  
R-3902

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H075 INLAND SHORELINE**  
**LINE**

Attributes

ACC    ACCURACY CATEGORY  
AHC    ASSOCIATED HYDROGRAPHIC CATEGORY  
HOC    HYDROGRAPHIC ORIGIN CATEGORY  
SLT    SHORELINE TYPE CATEGORY

PG Rules

G-0012  
G-0013  
L-3630  
O-3005  
R-2000  
R-2002  
R-2023  
R-2316  
X-8105

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H080 LAKE /POND**  
**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
HYC    HYDROGRAPHIC CATEGORY  
NAM    NAME CATEGORY  
WSC    WATER SALINITY CATEGORY  
ZVL    Z VALUE

PG Rules

G-0010  
G-0012  
G-0013  
L-3505  
L-3506  
L-3507  
L-4821  
R-2001  
R-2316

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TABLE I      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:      JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY:      Hydrography (2)  
 SUBCATEGORY:      Inland Water (2H)

---

2H080 LAKE /POND (Cont.)  
 AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and HYC(HYDROGRAPHIC CATEGORY) 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or 8(PERENNIAL/PERMANENT)  
 OR ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and HYC(HYDROGRAPHIC CATEGORY) 3(DRY)  
 and WSC(WATER SALINITY CATEGORY) 2(FRESH)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2H090 LAND SUBJECT TO INUNDATION  
 AREA

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0006
HOC HYDROGRAPHIC ORIGIN CATEGORY	G-0010
	G-0012

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2H110 PENSTOCK  
 LINE

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	G-0012
LOC LOCATION /ORIGIN CATEGORY	L-3596
	L-3630
	L-3641

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and LEN(LENGTH/DIAMETER) >= 625 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2H120 RAPIDS  
 LINE

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	G-0012
WID WIDTH	G-0013
	L-3505
	R-0006
	R-2017
	R-2232
	R-2429
	X-8101

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**TABLE I**                    Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

**2H120 RAPIDS (Cont.)**  
**LINE**

Inclusion Conditions:

WID(WIDTH) >= 125 m

**POINT**

Attributes  
WID    WIDTH

PG Rules  
C-0004  
G-0008  
L-3505  
R-0006  
R-2017  
R-2232  
X-8101

Inclusion Conditions:

WID(WIDTH) < 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H130 RESERVOIR**  
**AREA**

Attributes  
ARA    AREA COVERAGE ATTRIBUTE  
EXS    EXISTENCE CATEGORY  
NAM    NAME CATEGORY

PG Rules  
G-0006  
G-0010  
G-0012  
L-3505  
L-3506  
R-2000  
R-2002  
R-2316

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H140 RIVER /STREAM**  
**AREA**

Attributes  
ACC    ACCURACY CATEGORY  
HYC    HYDROGRAPHIC CATEGORY  
NAM    NAME CATEGORY  
SLT    SHORELINE TYPE CATEGORY  
TID    TIDAL /NON-TIDAL CATEGORY  
WID    WIDTH

<u>PG Rules</u>	<u>PG Rules</u>
L-0062	R-2014
L-3506	R-2015
O-3007	R-2299
R-0031	R-2316
R-2009	R-2429
R-2010	S-1003

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or  
8(PERENNIAL/PERMANENT)  
and WID(WIDTH) >= 125 m

TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
CATEGORY: Hydrography (2)  
SUBCATEGORY: Inland Water (2H)

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2H140: RIVER /STREAM (Cont.)  
LINE

Attributes	PG Rules
HYC HYDROGRAPHIC CATEGORY	L-3630
LEN LENGTH /DIAMETER	O-3007
NAM NAME CATEGORY	R-0031
TID TIDAL /NON-TIDAL CATEGORY	R-2008
WID WIDTH	R-2009
	R-2299
	R-2316

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or  
8(PERENNIAL/PERMANENT)  
and WID(WIDTH) < 125 m  
and LEN(LENGTH/DIAMETER) >= 3,175 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2H145 RIVER OR STREAM VANISHING POINT  
POINT

Attributes	PG Rules
DOF DIRECTION OF FLOW	C-0002
HFC HYDROGRAPHIC FORM CATEGORY	G-0008
	R-2013
	R-2232
	R-3901
	X-8102

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2H150 SALT EVAPORATOR  
AREA

Attributes	PG Rules
ARA AREA COVERAGE ATTRIBUTE	G-0006
	G-0010
	G-0012
	G-0013
	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2H160 SAKKA  
AREA

Attributes	PG Rules
ARA AREA COVERAGE ATTRIBUTE	G-0010
	G-0012
	G-0013
	L-3505
	L-3506
	R-3730
	R-3732

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

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**2H160**    **SABKHA (Cont.)**  
**AREA**

R-3733

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H170**    **SPRING**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
DOF    DIRECTION OF FLOW	G-0008
HYC    HYDROGRAPHIC CATEGORY	L-3505
SCC    SPRING /WELL CHARACTERISTIC CATEGORY	R-3900

Inclusion Conditions:

HYC (HYDROGRAPHIC CATEGORY) 3 (DRY)  
 or    6 (NON-PERENNIAL/INTERMITTENT/FLUCTUATING)  
 or    8 (PERENNIAL/PERMANENT)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2H180**    **WATERFALL**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
LMC    LANDMARK CATEGORY	G-0013
NAM    NAME CATEGORY	L-3505
	X-8101

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
 and LEN (LENGTH/DIAMETER) >= 125 m

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	C-0004
LMC    LANDMARK CATEGORY	G-0008
NAM    NAME CATEGORY	L-3505
	X-8101

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
 and LEN (LENGTH/DIAMETER) < 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2I010**    **CISTERN**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
EXS    EXISTENCE CATEGORY	C-0022
	G-0008
	L-3505

---

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Miscellaneous Inland Water (2I)

**2I010 CISTERN (Cont.)**  
**POINT**

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2I020 DAM**  
**AREA**

Attributes  
EXS EXISTENCE CATEGORY  
LEN LENGTH /DIAMETER  
MCP MATERIAL COMPOSITION PRIMARY  
NAM NAME CATEGORY  
TUC TRANSPORTATION USE CATEGORY  
WID WIDTH

PG Rules  
L-3505

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 125 m  
and WID(WIDTH) >= 125 m

**LINE**

Attributes  
EXS EXISTENCE CATEGORY  
LEN LENGTH /DIAMETER  
MCP MATERIAL COMPOSITION PRIMARY  
NAM NAME CATEGORY  
TUC TRANSPORTATION USE CATEGORY  
WID WIDTH

PG Rules  
G-0012  
L-3505  
R-0004  
R-2232  
S-0102  
V-1013  
X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 125 m  
and WID(WIDTH) < 125 m

**POINT**

Attributes  
LEN LENGTH /DIAMETER  
MCP MATERIAL COMPOSITION PRIMARY  
NAM NAME CATEGORY  
WID WIDTH

PG Rules  
C-0003  
R-0004  
R-2232  
S-0102  
V-1013  
X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 125 m  
and WID(WIDTH) < 125 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

TABLE I      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:      JOINT OPERATIONS GRAPHICS - 1501 AIR

CATEGORY:      Hydrography (2)

SUBCATEGORY:      Miscellaneous Inland Water (21)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

21030 LOCK

LINE

Attributes

LMC LANDMARK CATEGORY

PG Rules

G-0012

L-3505

R-2232

X-8103

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

21050 WATER INTAKE TOWER

POINT

Attributes

COE CERTAINTY OF EXISTENCE

HGT HEIGHT ABOVE SURFACE LEVEL

LMC LANDMARK CATEGORY

ZVL Z VALUE

PG Rules

L-3505

L-5040

R-2232

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2J020 GLACIAL MORAINÉ

AREA

Attributes

WID WIDTH

PG Rules

G-0006

G-0010

G-0012

G-0013

Inclusion Conditions:

WID(WIDTH) >= 625 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2J030 GLACIER

AREA

Attributes

WID WIDTH

PG Rules

G-0006

G-0010

G-0012

G-0013

R-2120

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Hydrography (2)  
**SUBCATEGORY:**     Snow /Ice (2J)

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**2J030 GLACIER (Cont.)**  
**AREA**

Inclusion Conditions:

WID(WIDTH) >= 625 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2J040 ICE CLIFF**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
	G-0013
	R-2128

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 3,175 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2J060 ICE PEAK, MOUNTAIN**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LMC    LANDMARK CATEGORY	-None
MCP    MATERIAL COMPOSITION PRIMARY	

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and MCP(MATERIAL COMPOSITION PRIMARY) 66(ROCK) or 98(SNOW/ICE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2J065 ICE SHELF**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
	G-0010
	G-0012
	G-0013
	L-3568

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**2J070 PACK ICE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
HSA    HYDROGRAPHIC SEASONAL ATTRIBUTE	G-0010
	G-0012
	G-0013
	L-3506
	L-3598
	R-0061

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TABLE I      Feature/Attribute category, inclusion conditions, and product generation rules

PRODUCT:      JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY:      Hydrography (2)  
 SUBCATEGORY:      Snow /Ice (2J)

2J070    PACK ICE (Cont.)  
 AREA

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2J100    SNOW FIELD /ICE FIELD  
 AREA

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
SIC    SNOW /ICE CATEGORY	G-0010
	G-0012
	G-0013
	L-3505
	L-3568
	R-2120

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

2J110    TUNDRA  
 AREA

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
	G-0010
	G-0012
	G-0013
	L-3505
	L-3562
	L-3568

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

3A010    CONTOUR (LAND)  
 LINE

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
HQC    HYP SOGRAPHY PORTRAYAL CATEGORY	L-0002	R-0024	R-2044
MCP    MATERIAL COMPOSITION PRIMARY	L-3573	R-0025	R-2045
ZVL    Z VALUE	L-3574	R-0026	R-2051
	L-3575	R-0027	R-2085
	L-3576	R-0028	R-2094
	L-3599	R-2036	R-2097
	L-3642	R-2037	R-2098
	L-3643	R-2038	R-2100
	L-3644	R-2039	R-2101
	L-3986	R-2040	R-2102
	L-4036	R-2043	



**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Hypsography (3)  
**SUBCATEGORY:** Relief Portrayal (3A)

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**3A010 CONTOUR (LAND) (Cont.)**  
**LINE**

Inclusion Conditions:

HQC(HYPSOGRAPHY PORTRAYAL CATEGORY) 1(INDEX) or 2(INTERMEDIATE) or 4(FORM LINES) or 5(DEPRESSION INDEX) or 6(DEPRESSION INTERMEDIATE) or 7(INDEX APPROXIMATE) or 8(MOUND INDEX) or 9(MOUND INTERMEDIATE) or 12(INTERMEDIATE APPROXIMATE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**3A030 SPOT ELEVATION**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	L-0004	L-3647
ELA ELEVATION ACCURACY	L-0005	L-3648
MCP MATERIAL COMPOSITION PRIMARY	L-0006	R-0025
ZVL Z VALUE	L-0007	R-0052
	L-3505	R-2058
	L-3645	R-2063

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4A005 ASPHALT LAKE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
LMC LANDMARK CATEGORY	G-0012
	G-0013
	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 99,225 m square  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4A010 GROUND SURFACE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
MCP MATERIAL COMPOSITION PRIMARY	G-0012
	G-0013
	L-3505
	L-3506
	L-3562
	L-3568
	R-3730
	R-3732
	R-3733

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**      Physiography (4)  
**SUBCATEGORY:**      Exposed Surface Material (4A)

**4A010 GROUND SURFACE (Cont.)**  
**AREA**

Inclusion Conditions:

MCP(MATERIAL COMPOSITION PRIMARY) 6(BOULDERS) or 30(GAS/ OIL BLISTER) or 35(GRAVEL) or 40(KARST) or 43(LAVA) or 44(LOESS) or 117(ROCKY)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 10,080,625 m square  
 OR MCP(MATERIAL COMPOSITION PRIMARY) 69(SAND) or 116(SAND AND GRAVEL)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 2,520,155 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4A020 SALT PAN**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B010 BLUFF /CLIFF, ESCARPMENT**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
GLI    GREATER THAN/LESS THAN CONTOUR INTERVAL	G-0012
LEN    LENGTH /DIAMETER	G-0013
PFH    PREDOMINANT FEATURE HEIGHT	R-2095

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B030 CAVE DWELLING**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
AOO    ANGLE OF ORIENTATION	L-3505
LMC    LANDMARK CATEGORY	R-2391
NAM    NAME CATEGORY	

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B060 CREVICE /CREVASSE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
MCP    MATERIAL COMPOSITION PRIMARY	G-0013
WID    WIDTH	L-3505

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Physiography (4)  
**SUBCATEGORY:**     Landforms (4B)

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**4B060 CREVICE /CREVASSE (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m  
 and WID(WIDTH) >= 65 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B071 CUT LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
GLI    GREATER THAN/LESS THAN CONTOUR INTERVAL	G-0012
LEN    LENGTH /DIAMETER	G-0013
PFD    PREDOMINANT FEATURE DEPTH	R-2113
	R-2115
	R-2231
	R-2269

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B090 EMBANKMENT**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
EFI    EMBANKMENT /FILL IDENTIFIER	D-1500	R-2115
GLI    GREATER THAN/LESS THAN CONTOUR INTERVAL	G-0012	R-2171
LEN    LENGTH /DIAMETER	L-3505	R-2231
PFH    PREDOMINANT FEATURE HEIGHT	L-3630	R-2269
TUC    TRANSPORTATION USE CATEGORY	R-0028	S-0100
VRC    VERTICAL REFERENCE CATEGORY	R-2112	S-0101
	R-2113	

Inclusion Conditions:

EFI(EMBANKMENT/FILL IDENTIFIER) 1(FILL)  
 and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m  
 and LEN(LENGTH/DIAMETER) >= 1,000 m  
 and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or  
 2(LESS THAN CONTOUR INTERVAL)

OR EFI(EMBANKMENT/FILL IDENTIFIER) 2(LEEVE/DIKE)  
 and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m  
 and LEN(LENGTH/DIAMETER) >= 1,000 m  
 and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or  
 2(LESS THAN CONTOUR INTERVAL)

OR EFI(EMBANKMENT/FILL IDENTIFIER) 3(CAUSEWAY)  
 and LEN(LENGTH/DIAMETER) >= 375 m  
 and VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)  
 and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 3(NOT APPLICABLE)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR

CATEGORY: Physiography (4)

SUBCATEGORY: Landforms (4B)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

## 4B100 ESKER

## LINE

Attributes

LEN LENGTH /DIAMETER

PG Rules

G-0012

G-0013

L-3505

L-3509

Inclusion Conditions:

LEN(LENGTH/DIAMETER) &gt;= 1,000 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

## 4B110 FAULT

## LINE

Attributes

LEN LENGTH /DIAMETER

NAM NAME CATEGORY

PG Rules

G-0012

G-0013

L-3630

R-2093

Inclusion Conditions:

LEN(LENGTH/DIAMETER) &gt;= 1,000 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

## 4B115 GEOTHERMAL FEATURE

## POINT

Attributes

DOF DIRECTION OF FLOW

GFT GEOTHERMAL FEATURE TYPE

PG Rules

G-0008

L-3505

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

## 4B135 ISLAND

## AREA

Attributes

ARA AREA COVERAGE ATTRIBUTE

NAM NAME CATEGORY

NO ATTRIBUTE REQUIRED

PG Rules

G-0010

G-0012

G-0013

L-3505

L-3506

L-3613

PG Rules

O-3012

O-6136

R-0036

R-1901

R-1902

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY: Physiography (4)  
 SUBCATEGORY: Landforms (4B)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B150 MOUNTAIN PASS**

**POINT**

Attributes

AOO ANGLE OF ORIENTATION  
 NAM NAME CATEGORY  
 ZVL Z VALUE

PG Rules

G-0008  
 L-3505  
 R-7214

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B160 ROCK FORMATION**

**AREA**

Attributes

LMC LANDMARK CATEGORY  
 RKF ROCK FORMATION TYPE

PG Rules

-None

Inclusion Conditions:

RKF (ROCK FORMATION TYPE) 1 (COLUMNAR)  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

**POINT**

Attributes

LMC LANDMARK CATEGORY  
 RKF ROCK FORMATION TYPE

PG Rules

R-2092

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B170 SAND DUNES / SAND HILLS**

**AREA**

Attributes

ARA AREA COVERAGE ATTRIBUTE  
 SDO SAND DUNE ORIENTATION  
 SSC STRUCTURE SHAPE CATEGORY

PG Rules

G-0010  
 G-0012  
 G-0013  
 L-3505  
 L-3562  
 L-3568  
 R-2395  
 R-3730  
 R-3732  
 R-3733

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501 AIR

**CATEGORY:**      Physiography (4)

**SUBCATEGORY:**      Landforms (4B)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**4B180 VOLCANO**

**AREA**

Attributes

LOC      LOCATION /ORIGIN CATEGORY

NAM      NAME CATEGORY

VGT      VOLCANO GEOLOGIC TYPE

PG Rules

L-3505

L-3506

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
and VGT(VOLCANIC GEOLOGIC TYPE) 1(VOLCANO)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5A010 CROPLAND (CULTIVATED)**

**AREA**

Attributes

ARA      AREA COVERAGE ATTRIBUTE

FTC      FARMING TYPE CATEGORY

VEG      VEGETATION CHARACTERISTICS

PG Rules

G-0010

G-0012

G-0013

L-3505

L-3568

R-0033

R-2007

R-3730

R-3732

R-3733

Inclusion Conditions:

VEG(VEGETATION CHARACTERISTICS) 4(RICE PADDIES)  
and FTC(FARMING TYPE CATEGORY) 4(TERRACED)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
OR

FTC(FARMING TYPE CATEGORY) 3(OTHER)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5A040 ORCHARD /PLANTATION**

**AREA**

Attributes

ARA      AREA COVERAGE ATTRIBUTE

DMT      DENSITY MEASURE (% TREE /CANOPY COVER)

HGT      HEIGHT ABOVE SURFACE LEVEL

PRO      PRODUCT CATEGORY

PG Rules

G-0010

G-0012

G-0013

L-3505

L-3568

L-4010

R-3730

R-3732

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Vegetation (5)  
**SUBCATEGORY:**     Cropland (5A)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5A050 VINEYARD /BOPS**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0010
	G-0012
	G-0013
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5B010 GRASSLAND**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0010
	G-0012
	G-0013
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5C015 FIREBREAK**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
WID    WIDTH	L-3630

Inclusion Conditions:

WID(WIDTH) >= 37 m  
and LEN(LENGTH/DIAMETER) >= 2,500 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5C020 OASIS**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	L-0050
	L-3505

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0008
	L-3505

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TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR  
CATEGORY: Vegetation (5)  
SUBCATEGORY: Woodland (5C)

5C020 OASIS (Cont.)  
POINT

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

5C030 TREES  
AREA

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0002
COD CERTAINTY OF DELINEATION	G-0010
DMT DENSITY MEASURE (% TREE /CANOPY COVER)	G-0012
NAM NAME CATEGORY	G-0013
PHT PREDOMINANT HEIGHT	L-3505
VEG VEGETATION CHARACTERISTICS	L-3510
	R-0032
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

DMT (DENSITY MEASURE (% TREE/CANOPY COVER) >= 25% and < 51%  
and PHT (PREDOMINANT HEIGHT) >= 3 m  
and ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
OR DMT (DENSITY MEASURE (% TREE/CANOPY COVER) >= 51%  
and PHT (PREDOMINANT HEIGHT) >= 3 m  
and ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
OR VEG (VEGETATION CHARACTERISTICS) 16 (NIPA PALM) or 19 (MANGROVE)  
and ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square

LINE

<u>Attributes</u>	<u>PG Rules</u>
DMT DENSITY MEASURE (% TREE /CANOPY COVER)	G-0012
LEN LENGTH /DIAMETER	G-0013
PHT PREDOMINANT HEIGHT	
SBC SHELTER BELT CONDITION	
WID WIDTH	

Inclusion Conditions:

SBC (SHELTER BELT CONDITION) 1 (FUNCTIONS AS A SHELTER BELT)  
and DMT (DENSITY MEASURE (% TREE/CANOPY COVER) >= 25%  
and PHT (PREDOMINANT HEIGHT) >= 3 m  
and WID (WIDTH) < 65 m  
and LEN (LENGTH/DIAMETER) >= 1,000 m

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

5D010 BOG  
AREA

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010	R-2005
VEG VEGETATION CHARACTERISTICS	G-0012	R-2006
	G-0013	R-3730
	L-3505	R-3732
	L-3510	R-3733
	R-2003	



**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**    Vegetation (5)  
**SUBCATEGORY:**    Wetlands (5D)

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**5D010 BOG (Cont.)**  
**AREA**

Inclusion Conditions:

VEG(VEGETATION CHARACTERISTICS) 6(CRANBERRY) or 7(PEAT)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5D030 SWAMP**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0010
TID	TIDAL /NON-TIDAL CATEGORY	G-0012
		G-0013
		R-2002
		R-2003
		R-2006
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**5D040 MARSH**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0010
TID	TIDAL /NON-TIDAL CATEGORY	G-0012
		G-0013
		R-2002
		R-2003
		R-2006
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A000 ADMINISTRATIVE BOUNDARY**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC	ACCURACY CATEGORY	D-1655	L-3630	R-0019
BST	BOUNDARY STATUS TYPE	G-0011	L-4037	R-0020
NM3	NAME 3	L-3505	L-4707	R-2191
NM4	NAME 4	L-3623	L-4879	R-2192
USE	USE STATUS	L-3625	R-0011	R-2193
		L-3626	R-0015	R-2194
		L-3627	R-0016	R-2276
		L-3628	R-0017	R-2277
		L-3629	R-0018	R-2497

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:** Demarcation (6)  
**SUBCATEGORY:** Boundaries /Limits /Zones (Topographic) (6A)

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**6A000 ADMINISTRATIVE BOUNDARY (Cont.)**  
**LINE**

Inclusion Conditions:

USE(USE CATEGORY) 23(INTERNATIONAL) or 26(PRIMARY/1ST ORDER) or 30(2ND ORDER) or 31(3RD ORDER) or 32(INSULAR)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A020 ARMISTICE LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	D-1655	R-0016
NM3 NAME 3	G-0011	R-0017
NM4 NAME 4	L-3629	R-0018
	L-3630	R-0019
	L-4037	R-0020
	R-0015	

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A030 CEASE-FIRE LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	D-1655	R-0016
	G-0011	R-0017
	L-3629	R-0018
	L-3630	R-0019
	L-4037	R-0020
	R-0015	R-0022

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A050 INTERNATIONAL MARITIME BOUNDARY**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	G-0011
NM3 NAME 3	L-3625
NM4 NAME 4	L-3630
TXT TEXT ATTRIBUTE	L-4037
	R-0015
	R-0016
	R-0017
	R-0018
	R-0019
	R-0020

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**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501 AIR  
**CATEGORY:**     Demarcation (6)  
**SUBCATEGORY:**     Boundaries /Limits /Zones (Topographic) (6A)

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**6A050 INTERNATIONAL MARITIME BOUNDARY (Cont.)**  
**LINE**

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC    ACCURACY CATEGORY	D-1655	R-0015
NM3    NAME 3	G-0011	R-0016
NM4    NAME 4	L-3625	R-0017
TXT    TEXT ATTRIBUTE	L-3629	R-0018
USE    USE STATUS	L-4037	R-0019
	L-4707	R-2276
	R-0013	R-2277
	R-0014	

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL or 26(PRIMARY/1ST ORDER)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A070 DEMILITARIZED ZONE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ACC    ACCURACY CATEGORY	L-3628
	L-3629
	L-3630
	R-0015
	R-2191
	R-2192
	R-2193
	R-2194

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**6A110 INTERNATIONAL DATE LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
NO ATTRIBUTE REQUIRED	G-0011
	L-3630

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

TABLE I

Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR

CATEGORY: Demarcation (6)

SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

6A170 ZONE OF OCCUPATION  
AREA

Attributes

ACC ACCURACY CATEGORY  
NM3 NAME 3

PG Rules

L-3628  
L-3629  
L-3630  
R-0015  
R-2191  
R-2192  
R-2193  
R-2194

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

9B035 CONTROL POINT  
POINT

Attributes

CPA CONTROL POINT ATTRIBUTE  
NAM NAME CATEGORY  
ZVL Z VALUE

PG Rules

L-4008  
R-0010  
R-0021  
T-0015

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

9C040 MAGNETIC DISTURBANCE AREA  
AREA

Attributes

VA1 FIRST MAGNETIC VARIATION VALUE  
VA2 SECOND MAGNETIC VARIATION

PG Rules

L-3505  
L-3510

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

9D012 MISCELLANEOUS CULTURAL FEATURE  
AREA

Attributes

ARA AREA COVERAGE ATTRIBUTE  
LMC LANDMARK CATEGORY  
NAM NAME CATEGORY  
TXT TEXT ATTRIBUTE

PG Rules

L-3505  
L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:    JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY:    General (9)  
 SUBCATEGORY:    Miscellaneous (9D)

**9D012 MISCELLANEOUS CULTURAL FEATURE (Cont.)**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	L-4260
LMC    LANDMARK CATEGORY	
NAM    NAME CATEGORY	
TXT    TEXT ATTRIBUTE	
WID    WIDTH	

Inclusion Conditions:

WID(WIDTH) < 625 m  
 and LEN(LENGTH/DIAMETER) >= 625 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	L-3505
LMC    LANDMARK CATEGORY	
NAM    NAME CATEGORY	
TXT    TEXT ATTRIBUTE	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**9D015 POINT OF CHANGE**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
PCI    POINT OF CHANGE IDENTIFIER	C-0021 R-2173 R-2189

Inclusion Conditions:

PCI(POINT OF CHANGE INDICATOR) 1(TRANSPORTATION/ROAD OR RAILROAD)  
 or 2(HYDROGRAPHY/DRAINAGE) or 3(BOUNDARIES)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**9D020 VOID COLLECTION AREA**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0011
VCA    VOID COLLECTION ATTRIBUTE	L-3568
VCT    VOID COLLECTION TYPE	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and VCA(VOID COLLECTION ATTRIBUTE) 2(AREA TOO ROUGH TO COLLECT) or 3(NO AVAILABLE IMAGERY) or 6(NO AVAILABLE MAP SOURCE) or 7(NO SUITABLE IMAGERY)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

TABLE I      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501 AIR

CATEGORY: General (9)

SUBCATEGORY: Miscellaneous (9D)

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

9D040 NAMED LOCATION  
AREA

<u>Attributes</u>	<u>PG Rules</u>
CSI CATEGORY/SUBCATEGORY INDEX	L-0050
NAM NAME CATEGORY	L-3608
PPL POPULATED PLACE CATEGORY	L-3609

Inclusion Conditions:

All required

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LINE

<u>Attributes</u>	<u>PG Rules</u>
CSI CATEGORY/SUBCATEGORY INDEX	L-0051
NAM NAME CATEGORY	L-3608
PPL POPULATED PLACE CATEGORY	L-3609
	L-3630

Inclusion Conditions:

All required

-----  
POINT

<u>Attributes</u>	<u>PG Rules</u>
CSI CATEGORY/SUBCATEGORY INDEX	L-3505
NAM NAME CATEGORY	L-3608
PPL POPULATED PLACE CATEGORY	L-3609

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

9D045 TEXT DESCRIPTION  
AREA

<u>Attributes</u>	<u>PG Rules</u>
CSI CATEGORY/SUBCATEGORY INDEX	L-0050
LAB LABEL OF THE FEATURE	

Inclusion Conditions:

All required

-----  
LINE

<u>Attributes</u>	<u>PG Rules</u>
CSI CATEGORY/SUBCATEGORY INDEX	L-0051
LAB LABEL OF THE FEATURE	L-3505
	L-3506

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TABLE I                    Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:     JOINT OPERATIONS GRAPHICS - 1501 AIR  
 CATEGORY:     General (9)  
 SUBCATEGORY:     Miscellaneous (9D)

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9D045   TEXT DESCRIPTION (Cont.)  
 LINE

Inclusion Conditions:

All required

---

POINT

Attributes  
 CSI    CATEGORY/SUBCATEGORY INDEX  
 LAB    LABEL OF THE FEATURE

PG Rules  
 L-3505

Inclusion Conditions:

All required

\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A\*JOG A

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**      Culture (1)

**SUBCATEGORY:**      Extraction (1A)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1A010 MINE**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0007
EXS    EXISTENCE CATEGORY	G-0010
MIN    MINING CATEGORY	G-0012
NAM    NAME CATEGORY	G-0013
PRO    PRODUCT CATEGORY	L-0061
	L-3505
	L-3562
	L-4007
	L-4010
	S-1002

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)  
and ARA(AREAS COVERAGE ATTRIBUTE) >= 390,625 m square

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0005
EXS    EXISTENCE CATEGORY	L-0020
MIN    MINING CATEGORY	L-0061
NAM    NAME CATEGORY	L-3505
PRO    PRODUCT CATEGORY	L-4007
	L-4010

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)  
and ARA(AREAS COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1A030 QUARRY**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0007
EXS    EXISTENCE CATEGORY	G-0010
PRO    PRODUCT CATEGORY	G-0012
	G-0013
	L-0061
	L-3505
	L-3562

Inclusion Conditions:

EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0005
EXS    EXISTENCE CATEGORY	L-0061
PRO    PRODUCT CATEGORY	L-3505

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Extraction (1A)

**1A030 QUARRY (Cont.)**  
**POINT**

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) < 390,625 m square  
 and EXS (EXISTENCE CATEGORY) 6 (ABANDONED) or 28 (OPERATIONAL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1A040 RIG /SUPERSTRUCTURE**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	G-0008
HGT HEIGHT ABOVE SURFACE LEVEL	L-0061
LMC LANDMARK CATEGORY	L-3505
LOC LOCATION /ORIGIN CATEGORY	L-5040
PRO PRODUCT CATEGORY	O-3008
ZVL Z VALUE	R-0046

Inclusion Conditions:

LOC (LOCATION/ORIGIN CATEGORY) 2 (OFF-SHORE)  
 OR HGT (HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1A050 WELL**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
EXS EXISTENCE CATEGORY	L-0061
HYC HYDROGRAPHIC CATEGORY	L-3505
LMC LANDMARK CATEGORY	R-2027
NAM NAME CATEGORY	T-0013
PRO PRODUCT CATEGORY	V-1018
SCC SPRING /WELL CHARACTERISTIC CATEGORY	
WFT WELL FEATURE TYPE	

Inclusion Conditions:

PRO (PRODUCT CATEGORY) 0 (UNKNOWN) or 12 (NATURAL GAS) or 18 (OIL)  
 and EXS (EXISTENCE CATEGORY) 28 (OPERATIONAL)  
 OR PRO (PRODUCT CATEGORY) 0 (UNKNOWN) or 12 (NATURAL GAS) or 18 (OIL)  
 and EXS (EXISTENCE CATEGORY) 6 (ABANDONED)  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
 OR PRO (PRODUCT CATEGORY) 27 (WATER)  
 and HYC (HYDROGRAPHIC CATEGORY) 0 (UNKNOWN) or  
 or 6 (NON-PERENNIAL/INTERMITTENT/FLUCTUATING)  
 or 8 (PERENNIAL/PERMANENT)  
 and EXS (EXISTENCE CATEGORY) 28 (OPERATIONAL)  
 OR PRO (PRODUCT CATEGORY) 27 (WATER)  
 and EXS (EXISTENCE CATEGORY) 6 (ABANDONED)  
 and HYC (HYDROGRAPHIC CATEGORY) 3 (DRY)  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**     Culture (1)

**SUBCATEGORY:**     Disposal (1B)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1B000 DISPOSAL SITE /WASTE PILE**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
PRO    PRODUCT CATEGORY

PG Rules

G-0006  
G-0010  
G-0012  
L-0061  
L-3505  
L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1C000 PROCESSING PLANT /TREATMENT PLANT**

**AREA**

Attributes

LMC    LANDMARK CATEGORY  
NAM    NAME CATEGORY  
PRO    PRODUCT CATEGORY  
WID    WIDTH

PG Rules

G-0010  
G-0012  
L-0061  
L-3505  
L-4010

Inclusion Conditions:

WID(WIDTH) >= 200 m

and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**POINT**

Attributes

AOO    ANGLE OF ORIENTATION  
LMC    LANDMARK CATEGORY  
NAM    NAME CATEGORY  
PRO    PRODUCT CATEGORY  
WID    WIDTH

PG Rules

L-0020  
L-0061  
L-3505  
L-4010

Inclusion Conditions:

WID(WIDTH) < 200 m

and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1C030 SETTLING BASIN /SLUDGE POND**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
WID    WIDTH

PG Rules

G-0006  
G-0012  
L-3505  
R-2002

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Processing Industry (1C)

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**1C030 SETTLING BASIN /SLUDGE POND (Cont.)**  
**AREA**

Inclusion Conditions:

WID(WIDTH) >= 200 m  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1D010 POWER PLANT FACILITY**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
LMC LANDMARK CATEGORY	G-0012
NAM NAME CATEGORY	L-3505
PPC POWER PLANT CATEGORY	L-4011

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and ARA(AREA COVERAGE CATEGORY) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1F010 CHIMNEY /SMOKESTACK**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	D-7019
HGT HEIGHT ABOVE SURFACE LEVEL	L-3505
LMC LANDMARK CATEGORY	L-5040
ZVL Z VALUE	O-3008
	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1F020 CONVEYOR**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	G-0012
	L-3505
	R-0006

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,500 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1F030 COOLING TOWER**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
HGT HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC LANDMARK CATEGORY	O-3008
ZVL Z VALUE	R-0046

TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501  
CATEGORY: Culture (1)  
SUBCATEGORY: Associated Industrial Structures (1F)

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1F030 COOLING TOWER (Cont.)  
POINT

Attributes

PG Rules

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL)  $\geq$  46 m  
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
and HGT(HEIGHT ABOVE SURFACE LEVEL)  $<$  46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

1F040 CRANE  
POINT

Attributes

PG Rules

COE CERTAINTY OF EXISTENCE  
HGT HEIGHT ABOVE SURFACE LEVEL  
ZVL Z VALUE

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL)  $\geq$  10 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

1F070 FLARE PIPE  
POINT

Attributes

PG Rules

COE CERTAINTY OF EXISTENCE  
HGT HEIGHT ABOVE SURFACE LEVEL  
LOC LOCATION /ORIGIN CATEGORY  
ZVL Z VALUE

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 2(OFF-SHORE)  
OR (LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
and HGT(HEIGHT ABOVE SURFACE LEVEL)  $\geq$  46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

1E050 FORT  
AREA

Attributes

PG Rules

LMC LANDMARK CATEGORY  
NAM NAME CATEGORY  
WID WIDTH

G-0010  
G-0012  
L-3505

Inclusion Conditions:

WID(WIDTH)  $\geq$  325 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

POINT

Attributes

PG Rules

AOO ANGLE OF ORIENTATION  
LEN LENGTH /DIAMETER  
LMC LANDMARK CATEGORY  
NAM NAME CATEGORY  
WID WIDTH

L-0020  
L-3505  
L-3516

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Institutional /Governmental (1H)

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**1H050 FORT (Cont.)**  
**POINT**

Inclusion Conditions:

WID(WIDTH) < 325 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1J050 WINDMILL /WINDMOTOR**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	L-3505
HGT    HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC    LANDMARK CATEGORY	O-3008
ZVL    Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1K020 AMUSEMENT PARK ATTRACTION**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
APS    AMUSEMENT PARK STRUCTURE	L-3505
COE    CERTAINTY OF EXISTENCE	L-5040
HGT    HEIGHT ABOVE SURFACE LEVEL	O-3008
ZVL    Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 10 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1K120 PARK**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
NAM    NAME CATEGORY	L-0050
USE    USE STATUS	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and USE(USE STATUS) 4(NATIONAL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1K130 RACE TRACK**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LMC    LANDMARK CATEGORY	G-0012
NAM    NAME CATEGORY	L-3505

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Recreational (1K)

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**1K130 RACE TRACK (Cont.)**  
**LINE**

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1K150 SKI JUMP**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	L-3505
HGT    HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC    LANDMARK CATEGORY	O-3008
ZVL    Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1K160 STADIUM**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE    CERTAINTY OF EXISTENCE	C-0022
HGT    HEIGHT ABOVE SURFACE LEVEL	L-0020
LMC    LANDMARK CATEGORY	L-3505
NAM    NAME CATEGORY	L-5040
ZVL    Z VALUE	

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L015 BUILDING**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
BFC    BUILDING FUNCTION CATEGORY	D-1652
HGT    HEIGHT ABOVE SURFACE LEVEL	G-0012
LMC    LANDMARK CATEGORY	L-0020
NAM    NAME CATEGORY	L-3505
WID    WIDTH	O-3008
	O-3009
	R-0046

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Miscellaneous Features (1L)

**1L015 BUILDING (Cont.)**  
**AREA**

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
 and WID(WIDTH) >= 125 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	C-0022	O-3009
AOO ANGLE OF ORIENTATION	D-1652	R-0046
BFC BUILDING FUNCTION CATEGORY	L-0020	R-2024
COE CERTAINTY OF EXISTENCE	L-3505	R-2025
EXS EXISTENCE CATEGORY	L-5040	R-2026
HGT HEIGHT ABOVE SURFACE LEVEL	O-3008	R-2170
HWT HOUSE OF WORSHIP TYPE		
LMC LANDMARK CATEGORY		
NAM NAME CATEGORY		
TUC TRANSPORTATION USE CATEGORY		
WID WIDTH		
ZVL Z VALUE		

Inclusion Conditions:

WID(WIDTH) < 125 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 OR HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR BFC(BUILDING FUNCTION CATEGORY) 27(PASSENGER TERMINAL)  
 and TUC(TRANSPORTATION USE CATEGORY) 3(RAILROAD)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L020 BUILT-UP AREA**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0006	L-3611	R-2333
EXS EXISTENCE CATEGORY	G-0010	L-3612	R-2526
	G-0012	R-0029	R-3730
	L-0020	R-2002	R-3733
	L-3505	R-2019	T-0002
	L-3514	R-2021	T-0003
	L-3515	R-2023	T-0012
	L-3610	R-2178	

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	L-0020
EXS EXISTENCE CATEGORY	L-3505
	L-3514
	R-2025
	R-2179

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Miscellaneous Features (1L)

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**11020 BUILT-UP AREA (Cont.)**  
**POINT**

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**11025 CAIRN**  
**POINT**

Attributes  
 LMC LANDMARK CATEGORY

PG Rules  
 -None

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**11070 FENCE**  
**LINE**

Attributes  
 LEN LENGTH /DIAMETER  
 LMC LANDMARK CATEGORY

PG Rules  
 G-0012  
 R-0006

Inclusion Conditions:

LEN (LENGTH/DIAMETER) >= 1,500 m  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**11085 GEOPHYSICAL PROSPECTING GRID**  
**LINE**

Attributes  
 LEN LENGTH /DIAMETER

PG Rules  
 G-0012  
 L-3505  
 L-3630  
 R-0006

Inclusion Conditions:

LEN (LENGTH/DIAMETER) >= 1,250 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**11100 HUT**  
**POINT**

Attributes  
 LMC LANDMARK CATEGORY

PG Rules  
 L-3505

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G



**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:** Culture (1)

**SUBCATEGORY:** Miscellaneous Features (1L)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L130 MONUMENT**

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-0020
HGT HEIGHT ABOVE SURFACE LEVEL	L-3505
LMC LANDMARK CATEGORY	L-5040
NAM NAME CATEGORY	O-3008
SSC STRUCTURE SHAPE CATEGORY	R-0046
ZVL Z VALUE	

Inclusion Conditions:

SSC(STRUCTURE SHAPE CATEGORY) 12(PYRAMID) or 76(ARCH) or 77(OBELISK) or 79(OTHER)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR SSC(STRUCTURE SHAPE CATEGORY) 12(PYRAMID) or 76(ARCH) or 77(OBELISK) or 79(OTHER)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L135 NATIVE SETTLEMENT**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
NAS NATIVE SETTLEMENT TYPE	G-0012
	R-2526
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

NAS(NATIVE SETTLEMENT TYPE) 2(CONTINUOUS HABITATION)  
and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L140 NUCLEAR ACCELERATOR**

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LMC LANDMARK CATEGORY	L-3505

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L160 PIPELINE /PIPE**

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	D-7017
EXS EXISTENCE CATEGORY	G-0012
LEN LENGTH /DIAMETER	L-0061
LMC LANDMARK CATEGORY	L-3517
LOC LOCATION /ORIGIN CATEGORY	L-3521
PRO PRODUCT CATEGORY	L-4260
	R-2031
	R-2180

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**      Culture (1)  
**SUBCATEGORY:**      Miscellaneous Features (1L)

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**1L160 PIPELINE /PIPE (Cont.)**  
**LINE**

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and LEN(LENGTH/DIAMETER) >= 1,250 m  
 and LOC(LOCATION/ORIGIN CATEGORY) 1(BELOW GROUND SURFACE) or 3(ON GROUND SURFACE)  
 or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and PRO(PRODUCT CATEGORY) 0(UNKNOWN) or 6(CHEMICAL) or 12(NATURAL GAS) or 13(GASOLINE)  
 or 18(OIL) or 27(WATER)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L180 PUMPING STATION**  
**POINT**

Attributes  
 AOO    ANGLE OF ORIENTATION  
 PRO    PRODUCT CATEGORY

PG Rules  
 G-0008  
 L-0061  
 L-3505  
 R-2240

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L200 RUINS**  
**AREA**

Attributes  
 ARA    AREA COVERAGE ATTRIBUTE  
 LOC    LOCATION /ORIGIN CATEGORY

PG Rules  
 G-0006  
 G-0012  
 L-0050  
 L-3505  
 L-3509  
 R-2333

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

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**POINT**

Attributes  
 ARA    AREA COVERAGE ATTRIBUTE  
 LMC    LANDMARK CATEGORY  
 LOC    LOCATION /ORIGIN CATEGORY

PG Rules  
 C-0022  
 L-3505

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)  
 and ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**      Culture (1)

**SUBCATEGORY:**      Miscellaneous Features (1L)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L208 SHANTY TOWN**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

G-0006

G-0010

G-0012

L-0050

R-0029

R-2002

PG Rules

R-2019

R-2179

R-2333

R-2526

R-3730

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L210 SNOW SHED /ROCK SHED**

**LINE**

Attributes

LEN    LENGTH /DIAMETER

SIT    SHED IDENTIFIER TYPE

WID    WIDTH

PG Rules

G-0012

L-0006

L-3505

R-2254

X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 300 m

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**POINT**

Attributes

LEN    LENGTH /DIAMETER

SIT    SHED IDENTIFIER TYPE

WID    WIDTH

PG Rules

C-0023

G-0008

L-3505

X-8108

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 300 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1L240 TOWER (NON- COMMUNICATION)**

**POINT**

Attributes

COE    CERTAINTY OF EXISTENCE

HGT    HEIGHT ABOVE SURFACE LEVEL

LMC    LANDMARK CATEGORY

TTC    TOWER TYPE CATEGORY

ZVL    Z VALUE

PG Rules

L-3505

L-5040

O-3008

R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**      Culture (1)

**SUBCATEGORY:**      Miscellaneous Features (11)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**11260 WALL**  
**LINE**

Attributes

LEN      LENGTH /DIAMETER  
LMC      LANDMARK CATEGORY

PG Rules

G-0012  
L-3610  
R-0009  
R-2178  
R-2179

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,250 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1M030 GRAIN ELEVATOR**  
**POINT**

Attributes

COE      CERTAINTY OF EXISTENCE  
HGT      HEIGHT ABOVE SURFACE LEVEL  
LMC      LANDMARK CATEGORY  
ZVL      Z VALUE

PG Rules

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1M050 SILO**  
**POINT**

Attributes

COE      CERTAINTY OF EXISTENCE  
HGT      HEIGHT ABOVE SURFACE LEVEL  
LMC      LANDMARK CATEGORY  
ZVL      Z VALUE

PG Rules

L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1M070 TANK**  
**POINT**

Attributes

COE      CERTAINTY OF EXISTENCE  
HGT      HEIGHT ABOVE SURFACE LEVEL  
LMC      LANDMARK CATEGORY  
LOC      LOCATION /ORIGIN CATEGORY  
PRO      PRODUCT CATEGORY  
WID      WIDTH  
ZVL      Z VALUE

PG Rules

D-1652  
L-0061  
L-3505  
L-3519  
L-4010  
L-4016  
L-5040  
O-3008  
R-0046  
R-2027

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Storage (1M)

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**1M070 TANK (Cont.)**  
**POINT**

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1M080 WATER TOWER**  
**POINT**

Attributes

COE CERTAINTY OF EXISTENCE  
 HGT HEIGHT ABOVE SURFACE LEVEL  
 LMC LANDMARK CATEGORY  
 ZVL Z VALUE

PG Rules

L-3505  
 L-5040  
 O-3008  
 R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1M010 RAILROAD TRACK**  
**LINE**

Attributes

ACC ACCURACY CATEGORY  
 EXS EXISTENCE CATEGORY  
 GAW GAUGE WIDTH  
 LOC LOCATION /ORIGIN CATEGORY  
 LTN LANE/TRACK NUMBER  
 NAM NAME CATEGORY  
 RGC RAILROAD GAUGE CATEGORY  
 RPS RAILROAD POWER SOURCE  
 RRC RAILROAD /ROAD CATEGORIES

PG Rules

D-1501  
 D-1650  
 D-7029  
 D-7030  
 G-0012  
 L-3614  
 L-3615  
 L-3616  
 L-3617  
 L-3618  
 L-3619  
 L-3620

PG Rules

L-3621  
 L-3622  
 L-3631  
 L-3632  
 L-3633  
 L-3634  
 L-3635  
 L-3636  
 L-3637  
 L-3638  
 L-3649

PG Rules

L-4284  
 O-3003  
 O-3004  
 O-3010  
 R-2195  
 R-2196  
 R-2197  
 R-2198  
 R-2601  
 S-0103  
 S-7030

Inclusion Conditions:

RGC(RAILROAD GAUGE CATEGORY) 1(BROAD) or 3(NORMAL (STANDARD))  
 and LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and RRC(RAILROAD/ROAD CATEGORIES) 1(MAIN LINE/BRANCH LINE)  
 and LTN(LANE/TRACK NUMBER) >= 1  
 OR RGC(RAILROAD GAUGE CATEGORY) 2(NARROW)  
 and LOC 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and RRC(RAILROAD/ROAD CATEGORIES) 3(MONORAIL) or 8(LOGGING)  
 and GAW(GAUGE WIDTH) >= 0.05 m  
 and LTN(LANE/TRACK NUMBER) >= 1  
 OR RRC(RAILROAD/ROAD CATEGORIES) 2(CAR-LINE)  
 and LOC 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 OR RRC(RAILROAD/ROAD CATEGORIES) 13(MARINE RAILROAD) or 14(RAILROAD IN ROAD)  
 and EXS(EXISTENCE CATEGORY) 5(UNDER CONSTRUCTION) or 6(ABANDONED) or 28(OPERATIONAL)  
 and LOC 3(ON GROUND SURFACE)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**    Culture (1)

**SUBCATEGORY:**    Transportation R/R (1N)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1N050 RR SIDING /RR SPUR**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	D-7028
LTN    LANE/TRACK NUMBER	G-0012
RGC    RAILROAD GAUGE CATEGORY	L-3505
RPS    RAILROAD POWER SOURCE	L-3630
RSA    RAIL SIDING /SPUR ATTRIBUTE	L-3634
	L-4284

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,250 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1N080 RR YARD**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
EXS    EXISTENCE CATEGORY	G-0006
LEN    LENGTH /DIAMETER	G-0010
LTN    LANE/TRACK NUMBER	G-0012
	O-0001
	O-0002

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,600 m  
and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 28(OPERATIONAL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1N090 TRAMWAY /INCLINE RAILWAY**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LOC    LOCATION /ORIGIN CATEGORY	G-0012
	L-3630

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1P010 CART TRACK**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC    ACCURACY CATEGORY	D-1652
LEN    LENGTH /DIAMETER	G-0012
TUC    TRANSPORTATION USE CATEGORY	O-0004
WTC    ROUTE WEATHERABILITY CATEGORY	R-0003
	R-2186
	R-2187

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Transportation /Roads (1P)

**1P010 CART TRACK (Cont.)**  
**LINE**

Inclusion Conditions:

WTC(ROUTE WEATHERABILITY CATEGORY) 2 (FAIR/DRY WEATHER)  
 and LEN(LENGTH/DIAMETER) >= 1,250 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1P020 INTERCHANGE**  
**LINE**

Attributes

LEN LENGTH /DIAMETER  
 RST ROAD/RUNWAY SURFACE TYPE  
 USE USE STATUS  
 WTC ROUTE WEATHERABILITY CATEGORY

PG Rules

-None

Inclusion Conditions:

USE(USE STATUS) 50 (LIMITED ACCESS)  
 and RST(ROAD/RUNWAY SURFACE TYPE) 1 (HARD SURFACE)  
 and WTC(ROUTE WEATHERABILITY CATEGORY) 1 (ALL WEATHER)  
 and LEN(LENGTH/DIAMETER) >= 625 m

**POINT**

Attributes

AOO ANGLE OF ORIENTATION  
 LEN LENGTH /DIAMETER  
 RST ROAD/RUNWAY SURFACE TYPE  
 USE USE STATUS  
 WTC ROUTE WEATHERABILITY CATEGORY

PG Rules

G-0012  
 R-2233

Inclusion Conditions:

USE(USE STATUS) 50 (LIMITED ACCESS)  
 and LEN(LENGTH/DIAMETER) < 625 m  
 and WTC(ROUTE WEATHERABILITY CATEGORY) 1 (ALL WEATHER)  
 and RST(ROAD/RUNWAY SURFACE TYPE) 1 (HARD SURFACE)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1P030 ROAD**  
**LINE**

Attributes

ACC ACCURACY CATEGORY  
 EXS EXISTENCE CATEGORY  
 LEN LENGTH /DIAMETER  
 LOC LOCATION /ORIGIN CATEGORY  
 LTN LANE/TRACK NUMBER  
 MED MEDIAN CATEGORY  
 MWD MEDIAN WIDTH  
 NAM NAME CATEGORY  
 RST ROAD/RUNWAY SURFACE TYPE  
 TUC TRANSPORTATION USE CATEGORY  
 WTC ROUTE WEATHERABILITY CATEGORY

PG Rules

D-1510  
 D-1652  
 D-7027  
 G-0012  
 L-3600  
 L-3602  
 L-3606  
 L-3622  
 L-3635  
 L-3639

PG Rules

L-3640  
 L-3649  
 L-3955  
 L-4016  
 L-5015  
 O-0004  
 O-0026  
 O-3010  
 R-0060  
 R-2172

PG Rules

R-2175  
 R-2176  
 R-2181  
 R-2182  
 R-2185  
 R-2186  
 R-2188  
 R-2189  
 S-1010

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Transportation /Roads (1P)

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**1P030 ROAD (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 300 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1P050 TRAIL**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
TUC    TRANSPORTATION USE CATEGORY	D-1652	O-0004
WTC    ROUTE WEATHERABILITY CATEGORY	G-0012	R-0002
	L-3603	R-0003
	L-3604	R-2177
	L-3630	R-2186
	L-4033	R-2187

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q010 AERIAL CABLEWAY LINE /SKI LIFT LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
LMC    LANDMARK CATEGORY	L-3568
USE    USE STATUS	L-3630

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,500 m  
 OR LEN(LENGTH/DIAMETER) < 1,500 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q040 BRIDGE /OVERPASS /VIADUCT**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
BOT    BRIDGE OPENING TYPE	C-0008
BVC    BRIDGE/VIADUCT CATEGORY	G-0012
EXS    EXISTENCE CATEGORY	L-3505
LEN    LENGTH /DIAMETER	L-4008
NAM    NAME CATEGORY	
OHB    OVERALL HEIGHT OF BRIDGE	
TUC    TRANSPORTATION USE CATEGORY	
ZVL    Z VALUE	

Inclusion Conditions:

TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(RAILROAD) or 4(ROAD) or 17(PEDESTRIAN) or 19(AQUEDUCT) or 20(CANAL)  
 and LEN(LENGTH/DIAMETER) >= 125 m

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**      Culture (1)  
**SUBCATEGORY:**      Associated Transportation (1Q)

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**1Q040 BRIDGE /OVERPASS /VIADUCT (Cont.)**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
BVC BRIDGE/VIADUCT CATEGORY	C-0006
COE CERTAINTY OF EXISTENCE	C-0007
EXS EXISTENCE CATEGORY	L-3505
LEN LENGTH /DIAMETER	L-4008
NAM NAME CATEGORY	L-5040
OHB OVERALL HEIGHT OF BRIDGE	
TUC TRANSPORTATION USE CATEGORY	
ZVL Z VALUE	

Inclusion Conditions:

TUC(TRANSPORTATION USE CATEGORY) 1(BOTH ROAD AND RAILROAD) or 3(RAILROAD) or 4(ROAD) or 19(AQUEDUCT) or 20(CANAL)  
 and LEN(LENGTH/DIAMETER) < 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q050 BRIDGE SUPERSTRUCTURE**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
OHB OVERALL HEIGHT OF BRIDGE	L-5040
ZVL Z VALUE	

Inclusion Conditions:

OHB(OVERALL HEIGHT OF BRIDGE) >= 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q060 CONTROL TOWER**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
HGT HEIGHT ABOVE SURFACE LEVEL	L-5040
ZVL Z VALUE	O-3008
	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 10 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q070 FERRY CROSSING**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
FCL FERRY CROSSING LENGTH	G-0012
NAM NAME CATEGORY	L-3505
	L-3630
	R-2232
	R-7193

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:      JOINT OPERATIONS GRAPHICS - 1501  
 CATEGORY:      Culture (1)  
 SUBCATEGORY:      Associated Transportation (10)

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**1Q070 FERRY CROSSING (Cont.)**  
**LINE**

Inclusion Conditions:

FCL(FERRY CROSSING LENGTH) >= 125 m

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**POINT**

Attributes  
 FCL    FERRY CROSSING LENGTH  
 NAM    NAME CATEGORY

PG Rules  
 L-3505  
 R-2232

Inclusion Conditions:

FCL(FERRY CROSSING LENGTH) < 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q100 DISTANCE MARKER**  
**POINT**

Attributes  
 DVA    DISTANCE VALUE ATTRIBUTE  
 UNI    UNITS CATEGORY

PG Rules  
 L-3605  
 L-3606  
 R-2183  
 R-2184

Inclusion Conditions:

UNI(UNITS CATEGORY) 10(KILOMETERS)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q110 MOORING MAST**  
**POINT**

Attributes  
 COE    CERTAINTY OF EXISTENCE  
 HGT    HEIGHT ABOVE SURFACE LEVEL  
 ZVL    Z VALUE

PG Rules  
 L-3505  
 L-5040  
 O-3008  
 R-0046

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q116 ROUTE MARKER**  
**POINT**

Attributes  
 NAM    NAME CATEGORY  
 TUC    TRANSPORTATION USE CATEGORY  
 USE    USE STATUS

PG Rules  
 R-2181  
 R-2182

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Associated Transportation (1Q)

**1Q116 ROUTE MARKER (Cont.)**  
**POINT**

Inclusion Conditions:

USE(USE CATEGORY) 4(NATIONAL) or 5(STATE) or 23(INTERNATIONAL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1Q131 TUNNEL**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	L-3505
NAM NAME CATEGORY	L-3630
TRA TRAVERSABILITY ATTRIBUTE	
TUC TRANSPORTATION USE CATEGORY	
WID WIDTH	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 315 m

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LEN LENGTH /DIAMETER	C-0020
NAM NAME CATEGORY	L-3505
TRA TRAVERSABILITY ATTRIBUTE	R-2227
TUC TRANSPORTATION USE CATEGORY	
WID WIDTH	

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 315 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1T010 DISH**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
COE CERTAINTY OF EXISTENCE	L-3505
HGT HEIGHT ABOVE SURFACE LEVEL	L-5040
LMC LANDMARK CATEGORY	O-3008
ZVL Z VALUE	R-0046

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1T030 POWER TRANSMISSION LINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	D-7020
LEN LENGTH /DIAMETER	G-0012
TST TRANSMISSION LINE SUSPENSION TYPE	L-4012
	R-0007

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Culture (1)  
**SUBCATEGORY:** Communication /Transmission (1T)

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**1T030 POWER TRANSMISSION LINE (Cont.)**  
**LINE**

R-2492  
R-7289

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1T040 POWER TRANSMISSION PYLON**  
**POINT**

Attributes

COE CERTAINTY OF EXISTENCE  
HGT HEIGHT ABOVE SURFACE LEVEL  
ZVL Z VALUE

PG Rules  
L-3505  
L-5040  
O-3008  
R-0046

Inclusion Conditions:

HGT(HEIGHT/DIAMETER) >= 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1T050 COMMUNICATIONS FACILITY**  
**AREA**

Attributes

ARA AREA COVERAGE ATTRIBUTE  
NAM NAME CATEGORY  
NST RADIO NAVIGATION /COMMUNICATION

PG Rules  
L-3505  
L-4008  
L-4813

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1T060 TELEPHONE LINE /TELEGRAPH LINE**  
**LINE**

Attributes

LEN LENGTH /DIAMETER  
LMC LANDMARK CATEGORY  
TEL TELECOMMUNICATIONS TYPE

PG Rules  
D-7015  
G-0012  
L-3630  
R-0008  
T-0014

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,600 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1T080 TOWER (COMMUNICATION)**  
**POINT**

Attributes

COE CERTAINTY OF EXISTENCE  
HGT HEIGHT ABOVE SURFACE LEVEL  
LMC LANDMARK CATEGORY  
NAM NAME CATEGORY  
NST RADIO NAVIGATION /COMMUNICATION

PG Rules  
D-1652  
L-3505  
L-5040  
O-3008  
R-0046

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Communication /Transmission (1T)

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**1T080 TOWER (COMMUNICATION) (Cont.)**  
**POINT**

Attributes  
 ZVL    Z VALUE

PG Rules

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m  
 OR HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1U025 AIRCRAFT LANDING PAD**  
**POINT**

Attributes  
 AFT    AIRCRAFT FACILITY TYPE  
 NAM    NAME CATEGORY  
 USE    USE STATUS

PG Rules  
 L-3505

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) .2(HELIPORT)  
 and USE(USE STATUS) 10(OTHER) or 43(HOSPITAL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1U030 AIRCRAFT FACILITY**  
**POINT**

Attributes  
 AFT    AIRCRAFT FACILITY TYPE  
 COD    CERTAINTY OF DELINEATION  
 EXS    EXISTENCE CATEGORY  
 NAM    NAME CATEGORY  
 USE    USE STATUS  
 ZVL    Z VALUE

PG Rules  
 L-3505  
 R-0039  
 R-0040  
 R-0041  
 R-0042  
 R-0044  
 R-0047  
 R-7293

Inclusion Conditions:

AFT(AIRCRAFT FACILITY TYPE) 0(UNKNOWN) or 1(AIRPORT) or 4(UNDEFINED LANDING AREA)  
 and EXS(EXISTENCE CATEGORY) 3(REPORTED) or 6(ABANDONED) or 9(NOT USABLE) or 27(CLOSED) or 28(OPERATIONAL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1U130 OVERRUN /STOPWAY**  
**LINE**

Attributes  
 LEN    LENGTH /DIAMETER

PG Rules  
 O-6201  
 R-6060

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**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Culture (1)  
**SUBCATEGORY:**    Airports (10)

**1U130    OVERRUN /STOPWAY (Cont.)**  
**LINE**

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**1U160    RUNWAY**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
EXS    EXISTENCE CATEGORY	G-0012
LEN    LENGTH /DIAMETER	L-0041
RPF    RUNWAY PATTERN FORMATION	L-0042
RST    ROAD/RUNWAY SURFACE TYPE	L-3505
ZVL    Z VALUE	L-7050
	R-0045
	R-7293

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 457 m (1500 feet)  
 and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 9(NOT USABLE) or 27(CLOSED) or 28(OPERATIONAL)

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
AOO    ANGLE OF ORIENTATION	G-0008
EXS    EXISTENCE CATEGORY	L-0041
LEN    LENGTH /DIAMETER	L-0042
RPF    RUNWAY PATTERN FORMATION	L-3505
RST    ROAD/RUNWAY SURFACE TYPE	L-7050
ZVL    Z VALUE	R-7293

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 457 m (1500 feet)  
 and EXS(EXISTENCE CATEGORY) 6(ABANDONED) or 9(NOT USABLE) or 27(CLOSED) or 28(OPERATIONAL)  
 OR EXS(EXISTENCE CATEGORY) 0(UNKNOWN)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2A010    COASTAL SHORELINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC    ACCURACY CATEGORY	G-0012
SLT    SHORELINE TYPE CATEGORY	G-0013
VDC    VERTICAL DATUM CATEGORY	O-3005
	R-2000
	R-2002
	R-2022
	R-2023
	R-2316
	X-8106

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Coastal Hydro (2A)

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**2A010 COASTAL SHORELINE (Cont.)**  
**LINE**

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2A020 FORESHORE**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0010
WID	WIDTH	G-0012
		G-0006

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and WID(WIDTH) >= 315 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2A040 OPEN WATER (EXCEPT INLAND)**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0010
		G-0012
		G-0013
		L-3505
		L-3506
		R-2316
		R-3708

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2B040 BREAKWATER**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	G-0012
VRC	VERTICAL REFERENCE CATEGORY	
WID	WIDTH	

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))  
 and LEN(LENGTH/DIAMETER) >= 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2B140 JETTY**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	G-0012
VRC	VERTICAL REFERENCE CATEGORY	
WID	WIDTH	

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Ports and Harbors (2B)

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**2B140 JETTY (Cont.)**  
**LINE**

Inclusion Conditions:

VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)) or 8(COVERS AND UNCOVERS)  
 and LEN(LENGTH/DIAMETER) >= 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2B190 PIER, WHARF**  
**AREA**

Attributes  
 WID    WIDTH

PG Rules  
 G-0012

Inclusion Conditions:

WID(WIDTH) >= 125 m

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**LINE**

Attributes  
 LEN    LENGTH /DIAMETER  
 WID    WIDTH

PG Rules  
 G-0012

Inclusion Conditions:

WID(WIDTH) < 125 m  
 and LEN(LENGTH/DIAMETER) >= 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2B230 SEAWALL**  
**LINE**

Attributes  
 LEN    LENGTH /DIAMETER

PG Rules  
 G-0012

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 625 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2D120 REEF**  
**AREA**

Attributes  
 ARA    AREA COVERAGE ATTRIBUTE  
 COD    CERTAINTY OF DELINEATION  
 MCP    MATERIAL COMPOSITION PRIMARY  
 NAM    NAME CATEGORY  
 VRC    VERTICAL REFERENCE CATEGORY

PG Rules  
 G-0006  
 G-0010  
 G-0012  
 L-3505  
 L-3506  
 R-3708

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Dangers and Underwater Features (2D)

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**2D120 REEF (Cont.)**  
**AREA**

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 2 (AWASH AT SOUNDING DATUM) or 8 (COVERS AND UNCOVERS)  
 and COD (CERTAINTY OF DELINEATION) 1 (LIMITS AND INFO KNOWN)  
 and ARA (AREA COVERAGE ATTRIBUTE)  $\geq$  390,625 m square

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**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0012
COD    CERTAINTY OF DELINEATION	L-3630
MCP    MATERIAL COMPOSITION PRIMARY	
NAM    NAME CATEGORY	
VRC    VERTICAL REFERENCE CATEGORY	

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 2 (AWASH AT SOUNDING DATUM) or 8 (COVERS AND UNCOVERS)  
 and COD (CERTAINTY OF DELINEATION) 1 (LIMITS AND INFO KNOWN)  
 and ARA (AREA COVERAGE ATTRIBUTE)  $<$  390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2D125 REEF POOL**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0006
	G-0010
	G-0012

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE)  $\geq$  390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2D130 ROCK**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0005
HDI    HYDROGRAPHIC DEPTH /HEIGHT INFORMATION	L-3505
MCP    MATERIAL COMPOSITION PRIMARY	T-0836
NAM    NAME CATEGORY	
VRC    VERTICAL REFERENCE CATEGORY	

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 2 (AWASH AT SOUNDING DATUM) or 8 (COVERS AND UNCOVERS)  
 and MCP (MATERIAL COMPOSITION PRIMARY) 19 (CORAL) or 66 (ROCK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2D180 WRECK**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>
EPA    EXPOSED PORTION ATTRIBUTE	-None
LMC    LANDMARK CATEGORY	
VRC    VERTICAL REFERENCE CATEGORY	

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**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**     JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**     Hydrography (2)  
**SUBCATEGORY:**     Dangers and Underwater Features (2D)

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**2D180 WRECK (Cont.)**  
**POINT**

Inclusion Conditions:

VRC (VERTICAL REFERENCE CATEGORY) 1 (ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER))  
 and LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
 and EPA (EXPOSED PORTION ATTRIBUTE) 1 (MAST) or 2 (FUNNEL) or 3 (SUPERSTRUCTURE) or 4 (HULL) or 5 (MAST AND FUNNEL)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2E015 DEPTH CONTOUR**  
**LINE**

Attributes

ACC    ACCURACY CATEGORY  
 CRV    DEPTH CURVE OR CONTOUR VALUE  
 UNI    UNITS CATEGORY

PG Rules  
 L-3576

Inclusion Conditions:

CRV (DEPTH CURVE OR CONTOUR VALUE) = 182 m  
 AND UNI (UNITS CATEGORY) 5 (FATHOMS) or 13 (METERS)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2G010 CURRENT ARROW /FLOW ARROW**  
**POINT**

Attributes

CUR    CURRENT TYPE CATEGORY  
 DOF    DIRECTION OF FLOW

PG Rules  
 C-0014  
 R-0031  
 R-2034  
 R-2168

Inclusion Conditions:

CUR (CURRENT TYPE CATEGORY) 4 (RIVER FLOW)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H010 AQUEDUCT**  
**LINE**

Attributes

ATC    AQUEDUCT TYPE CATEGORY  
 EXS    EXISTENCE CATEGORY  
 LEN    LENGTH /DIAMETER  
 LOC    LOCATION /ORIGIN CATEGORY  
 WID    WIDTH

PG Rules  
 D-1654  
 G-0012  
 L-3518  
 L-3521  
 L-3630  
 L-3641  
 R-2002  
 R-2031  
 R-2433

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**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Inland Water (2H)

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**2H010 AQUEDUCT (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 625 m  
 and ATC(AQUEDUCT TYPE CATEGORY) 2(OTHER) or 3(QANAT/KANAT/KAREZ TUNNEL)

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
ATC AQUEDUCT TYPE CATEGORY	D-1654
LOC LOCATION /ORIGIN CATEGORY	R-0034
	R-0035

Inclusion Conditions:

ATC(AQUEDUCT TYPE CATEGORY) 1(QANAT/KANAT/KAREZ MAINTENANCE SHAFT)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H020 CANAL**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
EXS EXISTENCE CATEGORY	L-3513
HYC HYDROGRAPHIC CATEGORY	L-3630
LEN LENGTH /DIAMETER	L-3650
NAM NAME CATEGORY	O-0006
WID WIDTH	R-2002
	R-2016

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 8(PERENNIAL/PERMANENT)  
 and LEN(LENGTH/DIAMETER) >= 2,500 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H030 DITCH**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
HYC HYDROGRAPHIC CATEGORY	D-1652
LEN LENGTH /DIAMETER	D-1653
WID WIDTH	L-3630
	O-0006
	R-2002
	R-2016
	R-2116
	R-2117
	R-7294

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 2,500 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**    Hydrography (2)

**SUBCATEGORY:**    Inland Water (2H)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H040    FILTRATION /AERATION BEDS**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
LMC    LANDMARK CATEGORY	G-0012
WID    WIDTH	L-3505
	L-3506
	L-3509
	R-2002

Inclusion Conditions:

WID(WIDTH) >= 315 m  
and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H050    FISH HATCHERY**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
LMC    LANDMARK CATEGORY	G-0006
WID    WIDTH	G-0012
	L-3505

Inclusion Conditions:

WID(WIDTH) >= 375 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H060    FLUME**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
LOC    LOCATION /ORIGIN CATEGORY	L-3508
	L-3630
	L-3641

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 315 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H070    FORD**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0012
	L-3505
	L-3630
	R-0002
	R-2232
	R-3902

**TABLE I**                      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

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**2H070 FORD (Cont.)**  
**LINE**

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 125 m

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**POINT**

<u>Attributes</u>	<u>PG Rules</u>
LEN    LENGTH /DIAMETER	G-0008
	L-3505
	O-3005
	R-2232
	R-3902

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H075 INLAND SHORELINE**  
**LINE**

<u>Attributes</u>	<u>PG Rules</u>
ACC    ACCURACY CATEGORY	G-0012
AHC    ASSOCIATED HYDROGRAPHIC CATEGORY	G-0013
HOC    HYDROGRAPHIC ORIGIN CATEGORY	L-3630
SLT    SHORELINE TYPE CATEGORY	O-3005
	R-2000
	R-2002
	R-2023
	R-2316
	X-8105

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H080 LAKE /POND**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0010
HYC    HYDROGRAPHIC CATEGORY	G-0012
NAM    NAME CATEGORY	G-0013
WSC    WATER SALINITY CATEGORY	L-3505
ZVL    Z VALUE	L-3506
	L-3507
	L-4821
	R-2001
	R-2316

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

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**2H080 LAKE /POED (Cont.)**  
**AREA**

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and HYC(HYDROGRAPHIC CATEGORY) 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or 8(PERENNIAL/PERMANENT)  
 OR ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and HYC(HYDROGRAPHIC CATEGORY) 3(DRY)  
 and WSC(WATER SALINITY CATEGORY) 2(FRESH)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H090 LAND SUBJECT TO INUNDATION**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0006
HOC	HYDROGRAPHIC ORIGIN CATEGORY	G-0010
		G-0012

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H110 PENSTOCK**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	G-0012
LOC	LOCATION /ORIGIN CATEGORY	L-3596
		L-3630
		L-3641

Inclusion Conditions:

LOC(LOCATION/ORIGIN CATEGORY) 3(ON GROUND SURFACE) or 4(SUSPENDED OR ELEVATED ABOVE GROUND OR WATER)  
 and LEN(LENGTH/DIAMETER) >= 625 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H120 RAPIDS**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	G-0012
WID	WIDTH	G-0013
		L-3505
		R-0006
		R-2017
		R-2232
		R-2429
		X-8101

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Inland Water (2H)

**2H120 RAPIDS (Cont.)**  
**LINE**

Inclusion Conditions:

WID(WIDTH) >= 125 m

**POINT**

Attributes  
WID    WIDTH

PG Rules

C-0004  
G-0008  
L-3505  
R-0006  
R-2017  
R-2232  
X-8101

Inclusion Conditions:

WID(WIDTH) < 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H130 RESERVOIR**  
**AREA**

Attributes  
ARA    AREA COVERAGE ATTRIBUTE  
EXS    EXISTENCE CATEGORY  
NAM    NAME CATEGORY

PG Rules

G-0006  
G-0010  
G-0012  
L-3505  
L-3506  
R-2000  
R-2002  
R-2316

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2H140 RIVER /STREAM**  
**AREA**

Attributes  
ACC    ACCURACY CATEGORY  
HYC    HYDROGRAPHIC CATEGORY  
NAM    NAME CATEGORY  
SLT    SHORELINE TYPE CATEGORY  
TID    TIDAL /NON-TIDAL CATEGORY  
WID    WIDTH

PG Rules

L-0062  
L-3506  
O-3007  
R-0031  
R-2009  
R-2010

PG Rules

R-2014  
R-2015  
R-2299  
R-2316  
R-2429  
S-1003

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or  
8(PERENNIAL/PERMANENT)  
and WID(WIDTH) >= 125 m

TABLE I . Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501  
 CATEGORY: Hydrography (2)  
 SUBCATEGORY: Inland Water (2H)

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2H140 RIVER /STREAM (Cont.)  
 LINE

Attributes	PG Rules
BYC HYDROGRAPHIC CATEGORY	L-3630
LEN LENGTH /DIAMETER	O-3007
NAM NAME CATEGORY	R-0031
TID TIDAL /NON-TIDAL CATEGORY	R-2008
WID WIDTH	R-2009
	R-2299
	R-2316

Inclusion Conditions:

HYC(HYDROGRAPHIC CATEGORY) 3(DRY) or 6(NON-PERENNIAL/INTERMITTENT/FLUCTUATING) or 8(PERENNIAL/PERMANENT)  
 and WID(WIDTH) < 125 m  
 and LEN(LENGTH/DIAMETER) >= 3,175 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

2H145 RIVER OR STREAM VANISHING POINT  
 POINT

Attributes	PG Rules
DOF DIRECTION OF FLOW	C-0002
HFC HYDROGRAPHIC FORM CATEGORY	G-0008
	R-2013
	R-2232
	R-3901
	X-8102

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

2H150 SALT EVAPORATOR  
 AREA

Attributes	PG Rules
ARA AREA COVERAGE ATTRIBUTE	G-0006
	G-0010
	G-0012
	G-0013
	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

2H160 SARKHA  
 AREA

Attributes	PG Rules
ARA AREA COVERAGE ATTRIBUTE	G-0010
	G-0012
	G-0013
	L-3505
	L-3506
	R-3730
	R-3732

---



TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501  
CATEGORY: Hydrography (2)  
SUBCATEGORY: Inland Water (2H)

---

2H160 SABKHA (Cont.)  
AREA

R-3733

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

2H170 SPRING  
POINT

Attributes

DOF DIRECTION OF FLOW  
HYC HYDROGRAPHIC CATEGORY  
SCC SPRING /WELL CHARACTERISTIC CATEGORY

PG Rules

G-0008  
L-3505  
R-3900

Inclusion Conditions:

HYC (HYDROGRAPHIC CATEGORY) 3 (DRY)  
or 6 (NON-PERENNIAL/INTERMITTENT/FLUCTUATING)  
or 8 (PERENNIAL/PERMANENT)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

2H180 WATERFALL  
LINE

Attributes

LEN LENGTH /DIAMETER  
LMC LANDMARK CATEGORY  
NAM NAME CATEGORY

PG Rules

G-0012  
G-0013  
L-3505  
X-8101

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
and LEN (LENGTH/DIAMETER) >= 125 m

---

POINT

Attributes

LEN LENGTH /DIAMETER  
LMC LANDMARK CATEGORY  
NAM NAME CATEGORY

PG Rules

C-0004  
G-0008  
L-3505  
X-8101

Inclusion Conditions:

LMC (LANDMARK CATEGORY) 1 (LANDMARK)  
and LEN (LENGTH/DIAMETER) < 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

2I010 CISTERN  
POINT

Attributes

EXS EXISTENCE CATEGORY

PG Rules

C-0022  
G-0008  
L-3505

---

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Miscellaneous Inland Water (21)

---

**21010 CISTERN (Cont.)**  
**POINT**

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**21020 DAM**  
**AREA**

Attributes

EXS    EXISTENCE CATEGORY  
 LEN    LENGTH /DIAMETER  
 MCP    MATERIAL COMPOSITION PRIMARY  
 NAM    NAME CATEGORY  
 TUC    TRANSPORTATION USE CATEGORY  
 WID    WIDTH

PG Rules

L-3505

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 125 m  
 and WID(WIDTH) >= 125 m

---

**LINE**

Attributes

EXS    EXISTENCE CATEGORY  
 LEN    LENGTH /DIAMETER  
 MCP    MATERIAL COMPOSITION PRIMARY  
 NAM    NAME CATEGORY  
 TUC    TRANSPORTATION USE CATEGORY  
 WID    WIDTH

PG Rules

G-0012  
 L-3505  
 R-0004  
 R-2232  
 S-0102  
 V-1013  
 X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 125 m  
 and WID(WIDTH) < 125 m

---

**POINT**

Attributes

LEN    LENGTH /DIAMETER  
 MCP    MATERIAL COMPOSITION PRIMARY  
 NAM    NAME CATEGORY  
 WID    WIDTH

PG Rules

C-0003  
 R-0004  
 R-2232  
 S-0102  
 V-1013  
 X-8101

Inclusion Conditions:

LEN(LENGTH/DIAMETER) < 125 m  
 and WID(WIDTH) < 125 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE 1**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**      Hydrography (2)

**SUBCATEGORY:**      Miscellaneous Inland Water (2I)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2I030 LOCK**

**LINE**

Attributes

LMC LANDMARK CATEGORY

PG Rules

G-0012

L-3505

R-2232

X-8103

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2I050 WATER INTAKE TOWER**

**POINT**

Attributes

COE CERTAINTY OF EXISTENCE

HGT HEIGHT ABOVE SURFACE LEVEL

LMC LANDMARK CATEGORY

ZVL Z VALUE

PG Rules

L-3505

L-5040

R-2232

Inclusion Conditions:

HGT(HEIGHT ABOVE SURFACE LEVEL) >= 46 m

OR LMC(LANDMARK CATEGORY) 1(LANDMARK)

and HGT(HEIGHT ABOVE SURFACE LEVEL) < 46 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J020 GLACIAL MORaine**

**AREA**

Attributes

WID WIDTH

PG Rules

G-0006

G-0010

G-0012

G-0013

Inclusion Conditions:

WID(WIDTH) >= 625 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J030 GLACIER**

**AREA**

Attributes

WID WIDTH

PG Rules

G-0006

G-0010

G-0012

G-0013

R-2120

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hydrography (2)  
**SUBCATEGORY:**    Snow /Ice (2J)

---

**2J030 GLACIER (Cont.)**  
**AREA**

Inclusion Conditions:

WID(WIDTH) >= 625 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J040 ICE CLIFF**  
**LINE**

Attributes  
 LEN    LENGTH /DIAMETER

PG Rules  
 G-0012  
 G-0013  
 R-2128

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 3,175 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J060 ICE PEAK, MOUNTAIN**  
**POINT**

Attributes  
 LMC    LANDMARK CATEGORY  
 MCP    MATERIAL COMPOSITION PRIMARY

PG Rules  
 -None

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)  
 and MCP(MATERIAL COMPOSITION PRIMARY) 66(ROCK) or 98(SNOW/ICE)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J065 ICE SHELF**  
**AREA**

Attributes  
 ARA    AREA COVERAGE ATTRIBUTE

PG Rules  
 G-0006  
 G-0010  
 G-0012  
 G-0013  
 L-3568

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J070 PACK ICE**  
**AREA**

Attributes  
 ARA    AREA COVERAGE ATTRIBUTE  
 HSA    HYDROGRAPHIC SEASONAL ATTRIBUTE

PG Rules  
 G-0006  
 G-0010  
 G-0012  
 G-0013  
 L-3506  
 L-3598  
 R-0061

---

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Hydrography (2)  
**SUBCATEGORY:** Snow /Ice (2J)

---

**2J070 PACK ICE (Cont.)**  
**AREA**

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J100 SNOW FIELD /ICE FIELD**  
**AREA**

Attributes

ARA AREA COVERAGE ATTRIBUTE  
 SIC SNOW /ICE CATEGORY

PG Rules

G-0006  
 G-0010  
 G-0012  
 G-0013  
 L-3505  
 L-3568  
 R-2120

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**2J110 TUNDRA**  
**AREA**

Attributes

ARA AREA COVERAGE ATTRIBUTE

PG Rules

G-0006  
 G-0010  
 G-0012  
 G-0013  
 L-3505  
 L-3562  
 L-3568

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**3A010 CONTOUR (LAND)**  
**LINE**

Attributes

HQC HYP SOGRAPHY PORTRAYAL CATEGORY  
 MCP MATERIAL COMPOSITION PRIMARY  
 ZVL Z VALUE

PG Rules

L-3573  
 L-3574  
 L-3575  
 L-3576  
 L-3599  
 L-3642  
 L-3643  
 L-3644  
 L-3986  
 L-4036  
 R-0024

PG Rules

R-0025  
 R-0026  
 R-0027  
 R-0028  
 R-2036  
 R-2037  
 R-2038  
 R-2039  
 R-2040  
 R-2043

PG Rules

R-2044  
 R-2045  
 R-2051  
 R-2085  
 R-2094  
 R-2097  
 R-2098  
 R-2100  
 R-2101  
 R-2102

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**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Hypsography (3)  
**SUBCATEGORY:**    Relief Portrayal (3A)

---

**3A010 CONTOUR (LAND) (Cont.)**  
**LINE**

Inclusion Conditions:

HQC(HYPSOGRAPHY PORTRAYAL CATEGORY) 1(INDEX) or 2(INTERMEDIATE) or 3(SUPPLEMENTARY (1/2)) or 4(FORM LINES) or 5(DEPRESSION INDEX) or 6(DEPRESSION INTERMEDIATE) or 7(INDEX APPROXIMATE) or 8(MOUND INDEX) or 9(MOUND INTERMEDIATE) or 12(INTERMEDIATE APPROXIMATE) or 13(SUPPLEMENTARY APPROXIMATE)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**3A030 SPOT ELEVATION**  
**POINT**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	L-0004	L-3647
ELA ELEVATION ACCURACY	L-0005	L-3648
MCP MATERIAL COMPOSITION PRIMARY	L-0006	R-0025
ZVL Z VALUE	L-0007	R-0052
	L-3505	R-2058
	L-3645	R-2063

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4A005 ASPHALT LAKE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
LMC LANDMARK CATEGORY	G-0012
	G-0013
	L-3505
	L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 99,225 m square  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4A010 GROUND SURFACE**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010
MCP MATERIAL COMPOSITION PRIMARY	G-0012
	G-0013
	L-3505
	L-3506
	L-3562
	L-3568
	R-3730
	R-3732
	R-3733

---

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Physiography (4)  
**SUBCATEGORY:** Exposed Surface Material (4A)

---

**4A010 GROUND SURFACE (Cont.)**  
**AREA**

Inclusion Conditions:

MCP(MATERIAL COMPOSITION PRIMARY) 6(BOULDERS) or 30(GAS/ OIL BLISTER) or 35(GRAVEL) or 40(KARST) or 43(LAVA) or 44(LOESS) or 117(ROCKY)  
 and ARA(AREA COVERAGE ATTRIBUTE)  $\geq$  10,080,625 m square  
 OR MCP(MATERIAL COMPOSITION PRIMARY) 69(SAND) or 116(SAND AND GRAVEL)  
 and ARA(AREA COVERAGE ATTRIBUTE)  $\geq$  2,520,155 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4A020 SALT PAN**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0006
		L-3505
		L-3506

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE)  $\geq$  390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B010 BLUFF /CLIFF, ESCARPMENT**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
GLI	GREATER THAN/LESS THAN CONTOUR INTERVAL	G-0012
LEN	LENGTH /DIAMETER	G-0013
PFH	PREDOMINANT FEATURE HEIGHT	R-2095

Inclusion Conditions:

LEN(LENGTH/DIAMETER)  $\geq$  1,000 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B030 CAVE DWELLING**  
**POINT**

<u>Attributes</u>		<u>PG Rules</u>
AOO	ANGLE OF ORIENTATION	L-3505
LMC	LANDMARK CATEGORY	R-2391
NAM	NAME CATEGORY	

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B060 CREVICE /CREVASSE**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>
LEN	LENGTH /DIAMETER	G-0012
MCP	MATERIAL COMPOSITION PRIMARY	G-0013
WID	WIDTH	L-3505

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TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501  
CATEGORY: Physiography (4)  
SUBCATEGORY: Landforms (4B)

4B060 CREVICE /CREVASSE (Cont.)  
LINE

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m  
and WID(WIDTH) >= 65 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

4B071 CUT LINE  
LINE

Attributes

GLI GREATER THAN/LESS THAN CONTOUR INTERVAL  
LEN LENGTH /DIAMETER  
PFD PREDOMINANT FEATURE DEPTH

PG Rules

G-0012  
G-0013  
R-2113  
R-2115  
R-2231  
R-2269

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

4B090 EMBANKMENT  
LINE

Attributes

EFI EMBANKMENT /FILL IDENTIFIER  
GLI GREATER THAN/LESS THAN CONTOUR INTERVAL  
LEN LENGTH /DIAMETER  
PFH PREDOMINANT FEATURE HEIGHT  
TUC TRANSPORTATION USE CATEGORY  
VRC VERTICAL REFERENCE CATEGORY

PG Rules

D-1500  
G-0012  
L-3505  
L-3630  
R-0028  
R-2112  
R-2113

PG Rules

R-2115  
R-2171  
R-2231  
R-2269  
S-0100  
S-0101

Inclusion Conditions:

EFI(EMBANKMENT/FILL IDENTIFIER) 1(FILL)  
and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m  
and LEN(LENGTH/DIAMETER) >= 1,000 m  
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or  
2(LESS THAN CONTOUR INTERVAL)

OR EFI(EMBANKMENT/FILL IDENTIFIER) 2(LEVEE/DIKE)  
and PFH(PREDOMINANT FEATURE HEIGHT) >= 3 m  
and LEN(LENGTH/DIAMETER) >= 1,000 m  
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 1(EQUAL TO OR GREATER THAN CONTOUR INTERVAL) or  
2(LESS THAN CONTOUR INTERVAL)

OR EFI(EMBANKMENT/FILL IDENTIFIER) 3(CAUSEWAY)  
and LEN(LENGTH/DIAMETER) >= 375 m  
and VRC(VERTICAL REFERENCE CATEGORY) 1(ABOVE SURFACE/DOES NOT COVER (AT HIGH WATER)  
and GLI(GREATER THAN/LESS THAN CONTOUR INTERVAL) 3(NOT APPLICABLE)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G



**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:** Physiography (4)

**SUBCATEGORY:** Landforms (4B)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B100 ESKER**

**LINE**

Attributes

LEN LENGTH /DIAMETER

PG Rules

G-0012

G-0013

L-3505

L-3509

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B110 FAULT**

**LINE**

Attributes

LEN LENGTH /DIAMETER

NAM NAME CATEGORY

PG Rules

G-0012

G-0013

L-3630

R-2093

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 1,000 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B115 GEOTHERMAL FEATURE**

**POINT**

Attributes

DOF DIRECTION OF FLOW

GFT GEOTHERMAL FEATURE TYPE

PG Rules

G-0008

L-3505

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B135 ISLAND**

**AREA**

Attributes

ARA AREA COVERAGE ATTRIBUTE

NAM NAME CATEGORY

NO ATTRIBUTE REQUIRED

PG Rules

G-0010

G-0012

G-0013

L-3505

L-3506

L-3613

PG Rules

O-3012

O-6136

R-0036

R-1901

R-1902

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**    Physiography (4)

**SUBCATEGORY:**    Landforms (4B)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B150 MOUNTAIN PASS**

**POINT**

Attributes

AOO    ANGLE OF ORIENTATION

NAM    NAME CATEGORY

ZVL    Z VALUE

PG Rules

G-0008

L-3505

R-7214

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B160 ROCK FORMATION**

**AREA**

Attributes

LMC    LANDMARK CATEGORY

RKF    ROCK FORMATION TYPE

PG Rules

-None

Inclusion Conditions:

RKF(ROCK FORMATION TYPE) 1(COLUMNAR)

and LMC(LANDMARK CATEGORY) 1(LANDMARK)

**POINT**

Attributes

LMC    LANDMARK CATEGORY

RKF    ROCK FORMATION TYPE

PG Rules

R-2092

Inclusion Conditions:

LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B170 SAND DUNES /SAND HILLS**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

SDO    SAND DUNE ORIENTATION

SSC    STRUCTURE SHAPE CATEGORY

PG Rules

G-0010

G-0012

G-0013

L-3505

L-3562

L-3568

R-2395

R-3730

R-3732

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**      Physiography (4)

**SUBCATEGORY:**      Landforms (4B)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**4B180 VOLCANO**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
LOC    LOCATION /ORIGIN CATEGORY	L-3505
NAM    NAME CATEGORY	L-3506
VGT    VOLCANO GEOLOGIC TYPE	

Inclusion Conditions:

LOC (LOCATION/ORIGIN CATEGORY) 3 (ON GROUND SURFACE)  
and VGT (VOLCANIC GEOLOGIC TYPE) 1 (VOLCANO)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5A010 CROPLAND (CULTIVATED)**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0010
FTC    FARMING TYPE CATEGORY	G-0012
VEG    VEGETATION CHARACTERISTICS	G-0013
	L-3505
	L-3568
	R-0033
	R-2007
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

VEG (VEGETATION CHARACTERISTICS) 4 (RICE PADDIES)  
and FTC (FARMING TYPE CATEGORY) 4 (TERRACED)  
and ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
OR  
FTC (FARMING TYPE CATEGORY) 3 (OTHER)  
and ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5A040 ORCHARD /PLANTATION**

**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA    AREA COVERAGE ATTRIBUTE	G-0010
DMT    DENSITY MEASURE (% TREE /CANOPY COVER)	G-0012
HGT    HEIGHT ABOVE SURFACE LEVEL	G-0013
PRO    PRODUCT CATEGORY	L-3505
	L-3568
	L-4010
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**    Vegetation (5)

**SUBCATEGORY:**    Cropland (5A)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5A050 VINEYARD /HOPS**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

G-0010

G-0012

G-0013

R-3730

R-3732

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5B010 GRASSLAND**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

G-0010

G-0012

G-0013

R-3730

R-3732

R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5C015 FIREBREAK**

**LINE**

Attributes

LEN    LENGTH /DIAMETER

WID    WIDTH

PG Rules

G-0012

L-3630

Inclusion Conditions:

LEN(LENGTH/DIAMETER) >= 2,500 m

and WID(WIDTH) >= 37 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5C020 OASIS**

**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

L-0050

L-3505

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

**POINT**

Attributes

ARA    AREA COVERAGE ATTRIBUTE

PG Rules

G-0008

L-3505

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**    JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**    Vegetation (5)  
**SUBCATEGORY:**    Woodland (5C)

---

**5C020 OASIS (Cont.)**  
**POINT**

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5C030 TREES**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0002
COD CERTAINTY OF DELINEATION	G-0010
DMT DENSITY MEASURE (% TREE /CANOPY COVER)	G-0012
NAM NAME CATEGORY	G-0013
PHT PREDOMINANT HEIGHT	L-3505
VEG VEGETATION CHARACTERISTICS	L-3510
	R-0032
	R-3730
	R-3732
	R-3733

Inclusion Conditions:

DMT(DENSITY MEASURE (% TREE/CANOPY COVER) >= 25% and < 51%  
 and PHT(PREDOMINANT HEIGHT) >= 3 m  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 OR DMT(DENSITY MEASURE (% TREE/CANOPY COVER) >= 51%  
 and PHT(PREDOMINANT HEIGHT) >= 3 m  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 OR VEG(VEGETATION CHARACTERISTICS) 16(NIPA PALM) or 19(MANGROVE)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

---

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
DMT DENSITY MEASURE (% TREE /CANOPY COVER)	G-0012
LEN LENGTH /DIAMETER	G-0013
PHT PREDOMINANT HEIGHT	
SBC SHELTER BELT CONDITION	
WID WIDTH	

Inclusion Conditions:

SBC(SHELTER BELT CONDITION) 1(FUNCTIONS AS A SHELTER BELT)  
 and DMT(DENSITY MEASURE (% TREE/CANOPY COVER) >= 25%  
 and PHT(PREDOMINANT HEIGHT) >= 3 m  
 and WID(WIDTH) < 65 m  
 and LEN(LENGTH/DIAMETER) >= 1,000 m

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5D010 BOG**  
**AREA**

<u>Attributes</u>	<u>PG Rules</u>	<u>PG Rules</u>
ARA AREA COVERAGE ATTRIBUTE	G-0010	R-2005
VEG VEGETATION CHARACTERISTICS	G-0012	R-2006
	G-0013	R-3730
	L-3505	R-3732
	L-3510	R-3733
	R-2003	

---

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:**      Demarcation (6)  
**SUBCATEGORY:**      Boundaries /Limits /Zones (Topographic) (6A)

---

**6A000 ADMINISTRATIVE BOUNDARY (Cont.)**  
**LINE**

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL) or 26(PRIMARY/1ST ORDER) or 30(2ND ORDER) or 31(3RD ORDER) or 32(INSULAR)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**6A020 ARMISTICE LINE**  
**LINE**

Attributes

ACC      ACCURACY CATEGORY  
 NM3      NAME 3  
 NM4      NAME 4

PG Rules

D-1655  
 G-0011  
 L-3629  
 L-3630  
 L-4037  
 R-0015

PG Rules

R-0016  
 R-0017  
 R-0018  
 R-0019  
 R-0020

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**6A030 CEASE-FIRE LINE**  
**LINE**

Attributes

ACC      ACCURACY CATEGORY

PG Rules

D-1655  
 G-0011  
 L-3629  
 L-3630  
 L-4037  
 R-0015

PG Rules

R-0016  
 R-0017  
 R-0018  
 R-0019  
 R-0020  
 R-0022

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**6A050 INTERNATIONAL MARITIME BOUNDARY**  
**LINE**

Attributes

ACC      ACCURACY CATEGORY  
 NM3      NAME 3  
 NM4      NAME 4  
 TXT      TEXT ATTRIBUTE

PG Rules

G-0011  
 L-3625  
 L-3630  
 L-4037  
 R-0015  
 R-0016  
 R-0017  
 R-0018  
 R-0019  
 R-0020

---

**TABLE I** Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:** JOINT OPERATIONS GRAPHICS - 1501  
**CATEGORY:** Vegetation (5)  
**SUBCATEGORY:** Wetlands (5D)

**5D010 BOG (Cont.)**  
**AREA**

Inclusion Conditions:

VEG(VEGETATION CHARACTERISTICS) 6(CRANBERRY) or 7(PEAT)  
 and ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5D030 SWAMP**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0010
TID	TIDAL /NON-TIDAL CATEGORY	G-0012
		G-0013
		R-2002
		R-2003
		R-2006
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**5D040 MARSH**  
**AREA**

<u>Attributes</u>		<u>PG Rules</u>
ARA	AREA COVERAGE ATTRIBUTE	G-0010
TID	TIDAL /NON-TIDAL CATEGORY	G-0012
		G-0013
		R-2002
		R-2003
		R-2006
		R-3730
		R-3732
		R-3733

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**6A000 ADMINISTRATIVE BOUNDARY**  
**LINE**

<u>Attributes</u>		<u>PG Rules</u>	<u>PG Rules</u>	<u>PG Rules</u>
ACC	ACCURACY CATEGORY	D-1655	L-3630	R-0019
BST	BOUNDARY STATUS TYPE	G-0011	L-4037	R-0020
NM3	NAME 3	L-3505	L-4707	R-2191
NM4	NAME 4	L-3623	L-4879	R-2192
USE	USE STATUS	L-3625	R-0011	R-2193
		L-3626	R-0015	R-2194
		L-3627	R-0016	R-2276
		L-3628	R-0017	R-2277
		L-3629	R-0018	R-2497

TABLE I      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501  
 CATEGORY: Demarcation (6)  
 SUBCATEGORY: Boundaries /Limits /Zones (Topographic) (6A)

---

6A050 INTERNATIONAL MARITIME BOUNDARY (Cont.)  
 LINE

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

6A060 DEFACTO BOUND. /OTHER LINE OF SEPARATION  
 LINE

<u>Attributes</u>		<u>PG Rules</u>	<u>PG Rules</u>
ACC	ACCURACY CATEGORY	D-1655	R-0015
NM3	NAME 3	G-0011	R-0016
NM4	NAME 4	L-3625	R-0017
TXT	TEXT ATTRIBUTE	L-3629	R-0018
USE	USE STATUS	L-4037	R-0019
		L-4707	R-2276
		R-0013	R-2277
		R-0014	

Inclusion Conditions:

USE(USE STATUS) 23(INTERNATIONAL) or 26(PRIMARY/1ST ORDER) or 30(2ND ORDER)  
 or 31(3RD ORDER) by special instruction only

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

6A070 DEMILITARIZED ZONE  
 AREA

<u>Attributes</u>	<u>PG Rules</u>
ACC ACCURACY CATEGORY	L-3628
	L-3629
	L-3630
	R-0015
	R-2191
	R-2192
	R-2193
	R-2194

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

6A110 INTERNATIONAL DATE LINE  
 LINE

<u>Attributes</u>	<u>PG Rules</u>
NO ATTRIBUTE REQUIRED	G-0011
	L-3630

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G



**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

**PRODUCT:**      JOINT OPERATIONS GRAPHICS - 1501

**CATEGORY:**      Demarcation (6)

**SUBCATEGORY:**      Boundaries /Limits /Zones (Topographic) (6A)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**6A170 ZONE OF OCCUPATION**

**AREA**

Attributes

ACC    ACCURACY CATEGORY  
NM3    NAME 3

PG Rules

L-3628  
L-3629  
L-3630  
R-0015  
R-2191  
R-2192  
R-2193  
R-2194

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**9B035 CONTROL POINT  
POINT**

Attributes

CPA    CONTROL POINT ATTRIBUTE  
NAM    NAME CATEGORY  
ZVL    Z VALUE

PG Rules

L-4008  
R-0010  
R-0021  
T-0015

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**9D012 MISCELLANEOUS CULTURAL FEATURE  
AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
LMC    LANDMARK CATEGORY  
NAM    NAME CATEGORY  
TXT    TEXT ATTRIBUTE

PG Rules

L-3505  
L-3506

Inclusion Conditions:

ARA (AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
and LMC (LANDMARK CATEGORY) 1 (LANDMARK)

**LINE**

Attributes

LEN    LENGTH /DIAMETER  
LMC    LANDMARK CATEGORY  
NAM    NAME CATEGORY  
TXT    TEXT ATTRIBUTE  
WID    WIDTH

PG Rules

L-4260

**TABLE I**      Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:    JOINT OPERATIONS GRAPHICS - 1501  
 CATEGORY:    General (9)  
 SUBCATEGORY:    Miscellaneous (9D)

---

**9D012 MISCELLANEOUS CULTURAL FEATURE (Cont.)**  
**LINE**

Inclusion Conditions:

WID(WIDTH) < 625 m  
 and LEN(LENGTH/DIAMETER) >= 625 m  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

---

**POINT**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
 LMC    LANDMARK CATEGORY  
 NAM    NAME CATEGORY  
 TXT    TEXT ATTRIBUTE

PG Rules  
 L-3505

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) < 390,625 m square  
 and LMC(LANDMARK CATEGORY) 1(LANDMARK)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**9D015 POINT OF CHANGE**  
**POINT**

Attributes

PCI    POINT OF CHANGE IDENTIFIER

PG Rules  
 C-0021  
 R-2173  
 R-2189

Inclusion Conditions:

PCI(POINT OF CHANGE INDICATOR) 1(TRANSPORTATION/ROAD OR RAILROAD)  
 or 2(HYDROGRAPHY/DRAINAGE) or 3(BOUNDARIES)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**9D020 VOID COLLECTION AREA**  
**AREA**

Attributes

ARA    AREA COVERAGE ATTRIBUTE  
 VCA    VOID COLLECTION ATTRIBUTE  
 VCT    VOID COLLECTION TYPE

PG Rules  
 G-0011  
 L-3568

Inclusion Conditions:

ARA(AREA COVERAGE ATTRIBUTE) >= 390,625 m square  
 and VCA(VOID COLLECTION ATTRIBUTE) 2(AREA TOO ROUGH TO COLLECT) or 3(NO AVAILABLE IMAGERY) or 6(NO AVAILABLE MAP SOURCE) or 7(NO SUITABLE IMAGERY)

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

**9D040 NAMED LOCATION**  
**AREA**

Attributes

CSI    CATEGORY/SUBCATEGORY INDEX  
 NAM    NAME CATEGORY  
 PPL    POPULATED PLACE CATEGORY

PG Rules  
 L-0050  
 L-3608  
 L-3609

---

**TABLE I**                    Feature/Attribute category, inclusion conditions, and product generation rules.

PRODUCT:    JOINT OPERATIONS GRAPHICS - 1501  
 CATEGORY:    General (9)  
 SUBCATEGORY:    Miscellaneous (9D)

9D040    NAMED LOCATION (Cont.)  
 AREA

Inclusion Conditions:

All required

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
CSI    CATEGORY/SUBCATEGORY INDEX	L-0051
NAM    NAME CATEGORY	L-3608
PPL    POPULATED PLACE CATEGORY	L-3609
	L-3630

Inclusion Conditions:

All required

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
CSI    CATEGORY/SUBCATEGORY INDEX	L-3505
NAM    NAME CATEGORY	L-3608
PPL    POPULATED PLACE CATEGORY	L-3609

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

9D045    TEXT DESCRIPTION  
 AREA

<u>Attributes</u>	<u>PG Rules</u>
CSI    CATEGORY/SUBCATEGORY INDEX	L-0050
LAB    LABEL OF THE FEATURE	

Inclusion Conditions:

All required

**LINE**

<u>Attributes</u>	<u>PG Rules</u>
CSI    CATEGORY/SUBCATEGORY INDEX	L-0051
LAB    LABEL OF THE FEATURE	L-3505
	L-3506

Inclusion Conditions:

All required

**POINT**

<u>Attributes</u>	<u>PG Rules</u>
CSI    CATEGORY/SUBCATEGORY INDEX	L-3505
LAB    LABEL OF THE FEATURE	

TABLE I

Feature/Attribute category, inclusion conditions, and  
product generation rules.

PRODUCT: JOINT OPERATIONS GRAPHICS - 1501  
CATEGORY: General (9)  
SUBCATEGORY: Miscellaneous (9D)

---

9D045 TEXT DESCRIPTION (Cont.)  
POINT

Inclusion Conditions:

All required

\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G\*JOG G

## APPENDIX A

## 1:250,000 SCALE JOINT OPERATIONS GRAPHICS PRODUCT RULES

## 10. SCOPE

10.1 Scope. This appendix provides information about the product rules necessary for the production of 1:250,000 JOG's. The information contained herein is intended for compliance.

## 20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto, cited in the solicitation (see 6.2).

## MILITARY STANDARDS

MIL-STD-2402	-	MC&G Symbolology.
MIL-STD-2403	-	MC&G Product Generation Rules.
MIL-STD-2408	-	MC&G Glossary of Feature/ Attribute Definitions.

20.2 Order of precedence. In the event of a conflict between the text of this appendix and either Table I of this specification, or MIL-STD-2403 cited above, the Table I and MIL-STD-2403 take precedence.

## 30. PRODUCT RULES

30.1 Classification of rules. Rules are classified into the following types:

a. A-Segregation	g. O-Override
b. C-Conflict	h. R-Representation
c. D-Displacement	i. S-Suppression
d. G-Generalization	j. T-Thinning
e. L-Labeling	k. V-Value added
f. N-No rules written	l. X-Data segregation

30.2 Appendix organization. This appendix lists in alphanumeric order the rule numbers and rule text for each feature type (area, line and point) of each FACS feature listed in Table I to this specification.

MIL-J-89100  
APPENDIX A  
JOINT OPERATIONS GRAPHICS PRODUCT RULES

**FEATURE: MINE...1A010 (AREA)**

**MINE...1A010 (AREA)**

- G-0007 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.
- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-0061 When PRO-000 (Unknown), omit the PRO label.
- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3562 If area is not large enough to place type within, move to outside and apply point hierarchy Rule L-3505.
- L-4007 If MIN-000, omit MIN window.
- L-4010 If PRO-019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.
- S-1002 In an area 25 mm x 25 mm where  $\geq 2$  mine symbols coalesce, one mine symbol shall be shown in the geographic center and the label "Mines" shall be positioned parallel with the south neatline and  $\leq 0.2$  mm from the mine symbol.

**MINE...1A010 (POINT)**

- G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.
- L-0020 NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.
- L-0061 When PRO-000 (Unknown), omit the PRO label.

MIL-J-89100  
APPENDIX A  
JOINT OPERATIONS GRAPHICS PRODUCT RULES

**FEATURE: MINE...1A010 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-4007** If MIN=000, omit MIN window.

**L-4010** If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

**QUARRY...1A030 (AREA)**

**G-0007** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the feature will be agglomerated to form an area multiple feature outline.

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-0061** When PRO=000 (Unknown), omit the PRO label.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3562** If area is not large enough to place type within, move to outside and apply point hierarchy Rule L-3505.

**QUARRY...1A030 (POINT)**

**G-0005** A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

**L-0061** When PRO=000 (Unknown), omit the PRO label.

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**FEATURE: QUARRY...1A030 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**RIG /SUPERSTRUCTURE...1A040 (POINT)**

**G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

**L-0061** When PRO=000 (Unknown), omit the PRO label.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**WELL...1A050 (POINT)**

**L-0061** When PRO=000 (Unknown), omit the PRO label.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-2027** All features are depicted in arid regions of the world.



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**FEATURE: WELL...1A050 (POINT)**

T-0013 When features exist in groups where they coalesce with one another, the area shall be expressed by the selection of wells without coalescence, those selected should be shown in their exact location to form the general pattern.

V-1018 IF WFT = 000 (Unknown), omit WFT window.

**DISPOSAL SITE /WASTE PILE...1B000 (AREA)**

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**PROCESSING PLANT /TREATMENT PLANT...1C000 (AREA)**

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

**PROCESSING PLANT /TREATMENT PLANT...1C000 (POINT)**

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**FEATURE: PROCESSING PLANT /TREATMENT PLANT...1C000 (POINT)**

**L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.

**L-0061** When PRO-000 (Unknown), omit the PRO label.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-4010** If PRO-019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

**SETTLING BASIN /SLUDGE POND...1C030 (AREA)**

**G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-2002** Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).

**POWER PLANT FACILITY...1D010 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

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**FEATURE: POWER PLANT FACILITY...1D010 (AREA)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-4011** If PPC=000, omit PPC window.

**CHIMNEY /SMOKESTACK...1F010 (POINT)**

**D-7019** If a Chimney/Smokestack (Point 1F010) < 46 m HGT coalesces < 0.2 mm with features:  
then displace the Chimney/Smokestack to 0.2mm from these features.

Point 1F010 Chimney/Smokestack  
Line 1T030 Power Transmission Line  
Point 1M070 Tank  
Point 1T080 Tower (Communications)  
Line 1P050 Trail  
Line 1P010 Cart Track  
Point 1L020 Built Up Area  
Point 1Q131 Tunnel  
Line 1Q131 Tunnel  
Point 1U160 Runway  
Line 1U160 Runway  
Point 1U030 Aircraft Facility  
Point 1P020 Interchange  
Line 1P030 Road  
Point 1Q040 Bridge/Overpass/Viaduct  
Line 1Q040 Bridge/Overpass/Viaduct  
Line 1N050 RR Siding/RR Spur  
Line 1N010 Railroad Track  
Line 6A000 Administrative Boundary  
Line 2H030 Ditch  
Line 2H020 Canal  
Line 2H140 River/Stream  
Line 2H075 Inland Shoreline  
Line 2A010 Coastal Shoreline

Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: CHIMNEY / SMOKESTACK...1F010 (POINT)**

- L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"
- O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.
- R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**CONVEYOR...1F020 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

- R-0006** Feature shall not be shown within Built-up Area (1L020).

**COOLING TOWER...1F030 (POINT)**

- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"
- O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.
- R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**CRANE...1F040 (POINT)**

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**FEATURE: CRANE...1F040 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some  $\geq$  46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**FLARE PIPE...1F070 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some  $\geq$  46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**FORT...1H050 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

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**FEATURE: FORT...1H050 (AREA)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**FORT...1H050 (POINT)**

**L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3516** Label feature as Fort if NAM is unknown.

**WINDMILL /WINDMOTOR...1J050 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)-001 (Definite), do not show COE label on symbol. If COE-002, label "Doubtful" If COE-003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**AMUSEMENT PARK ATTRACTION...1K020 (POINT)**

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**FEATURE: AMUSEMENT PARK ATTRACTION...1K020 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**PARK...1K120 (AREA)**

**G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

**L-0050** Type sizes per area sizes at map/chart scale: Area features only.

- |              |                          |              |
|--------------|--------------------------|--------------|
| 06 point - ≤ | 770 mm sq. area and ≤    | 14 mm width  |
| 07 point - ≤ | 2,296 mm sq. area and ≤  | 28 mm width  |
| 09 point - ≤ | 5,192 mm sq. area and ≤  | 44 mm width  |
| 10 point - ≤ | 9,796 mm sq. area and ≤  | 62 mm width  |
| 12 point - ≤ | 16,632 mm sq. area and ≤ | 84 mm width  |
| 14 point - ≤ | 24,960 mm sq. area and ≤ | 104 mm width |
| 16 point - > | 24,960 mm sq. area       |              |

Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**RACE TRACK...1K130 (LINE)**

**G-0012** Area and line features will be generalized to detail compatible with scale.

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**FEATURE: RACE TRACK...1K130 (LINE)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**SKI JUMP...1K150 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)-001 (Definite), do not show COE label on symbol. If COE-002, label "Doubtful" If COE-003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**STADIUM...1K160 (POINT)**

**C-0022** The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

**L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.



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**FEATURE: STADIUM...1K160 (POINT)**

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**BUILDING...1L015 (AREA)**

**D-1652** If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**O-3009** If HGT is >= 46 meters, then depict Building (1L015) as an obstruction symbol (posicut # 7) and label as building.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**BUILDING...1L015 (POINT)**

**C-0022** The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

**D-1652** If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

**L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

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**FEATURE: BUILDING...1L015 (POINT)**

- O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some  $\geq$  46 m, then only the obstruction symbol shall be shown.
- O-3009 If HGT is  $\geq$  46 meters, then depict Building (1L015) as an obstruction symbol (posicut # 7) and label as building.
- R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.
- R-2024 If a Coastal Shoreline (2A010) or Inland Shoreline (2H075) coincides with a Built-up Area (1L020) outline at any given point, then the Built-up Area (1L020) outline shall be deleted to allow the Shoreline to "carry" the limits of the Built-up Area.
- R-2025 When populated developments (1L015, 1L020) are made up of a single row of Buildings (1L015) strung out on one or both sides of a Route of communication (Roads, Railroads, Streams, and Canals), the "town circle" (Built-up Area, 1L020) is positioned at the nearest junction of the communication Routes or at the approximate center of the groups of Buildings.
- R-2026 In areas of sparse detail (< 10%), "town circles" may be shown even when no routes of communication are present.
- R-2170 When map source indicates a populated place by a pattern of Building symbols that do not meet inclusion conditions for (1L015), a town circle shall be shown at the center of the symbol area.

**BUILT-UP AREA...1L020 (AREA)**

- G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-0020 NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.
- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:  
1. Positional hierarchy:  
a. northeast (preferred position).  
b. southeast (1st alternate).  
c. northwest (2nd alternate)  
d. southwest (3rd alternate)  
e. top-centered (4th alternate)  
f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)  
2. Minimum space between type placement and feature symbol is 0.5 mm.  
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3514 Type point size shall be used to specify the classification of the Built-up Area based on 1st through 5th categories of importance:  
1st importance 12 pt Swiss 742 caps  
2nd importance 10 pt Swiss 742 caps  
3rd importance 10 pt Swiss 742 c/l  
4th importance 8 pt Swiss 742 caps  
5th importance 8 pt Swiss 742 c/l (town circles)
- L-3515 Alternate names (when available) shall be shown in parentheses positioned following the primary name (NAM) or centered immediately below the primary name in the same type style but one point size smaller.

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**FEATURE: BUILT-UP AREA...1L020 (AREA)**

- L-3610** Walls surrounding cities or parts of cities which are symbolized as Built-up Areas shall be indicated by the Wall symbol and the word "(walled)" added in parentheses below the place name label (NAM).
- L-3611** Ruined, destroyed and partially destroyed populated places shall have descriptive labeling in parentheses under place name label i.e., (ruined) (destroyed) (partially destroyed). Partially destroyed is < 75% destruction.
- L-3612** If ruined, destroyed or partially destroyed populated places are under reconstruction, EXS labeling is omitted.
- R-0029** If an open area exists inside of or is surrounded on three sides by a Built-up Area (1L020) and has an area measurement of less than 390,625 square meters, or has a minimum width of less than 315 meters, it becomes included in the Built-up Area. If an open area exists inside of or is surrounded on three sides by a Built-up Area (1L020) and has an area measurement equal to or greater than 390,625 square meters, and a minimum width of 315 meters or greater, delete the Built-up Area tint and portray the area as an open space.
- R-2002** Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).
- R-2019** The area outline (1L020) limits shall be shown as continuous except for those portions of the outline which coincide with any other mapped linear feature. These other mapped linear features shall become the Built-up Area limits and shall be retained.
- R-2021** If two or more outlined areas merge (coalesce at map scale), they shall be enclosed in a single common area outline. Dividing outlines shall not be shown.
- R-2023** Shorelines (2A010 Coastal and 2H075 Inland) which are coincident with features 2B190 Pier/Wharf, 2B230 Seawall, 1P030 Road, 1N010 Railroad Tracks, 1N050 Siding/Spur, and 1L260 Wall are not shown.
- R-2178** When a Wall symbol (1L260) coalesces with Built-up Area (1L020) outline, or Shantytown (1L208) outline, omit Built-up Area or Shantytown outline, and show Wall with Built-up Area tint only.
- R-2333** The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.
- R-2526** Delete perimeter line between contiguous polygons of Built-up Area (1L020), Native Settlement (1L135), and Shantytown (1L208).
- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature.
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

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**FEATURE: BUILT-UP AREA...1L020 (AREA)**

- T-0002** Larger Built-up Area (1L020) outlined areas shall be selected over smaller ones of the same classification (PPL 1, 2, 3, 4) importance. The same procedure shall apply to each classification PPL class (1st, 2nd, 3rd, 4th) importance.
- T-0003** Outlined Built-up Areas (1L020) located at Road junctions shall have preference over adjacent areas of similar size not at Road junctions.
- T-0012** Outlined areas shall be selected along the primary routes of communication as first consideration preference over adjacent outlined areas of similar size along adjacent secondary routes of communication.

**BUILT-UP AREA...1L020 (POINT)**

- L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3514** Type point size shall be used to specify the classification of the Built-up Area based on 1st through 5th categories of importance:
- 1st importance 12 pt Swiss 742 caps  
2nd importance 10 pt Swiss 742 caps  
3rd importance 10 pt Swiss 742 c/l  
4th importance 8 pt Swiss 742 caps  
5th importance 8 pt Swiss 742 c/l (town circles)
- R-2025** When populated developments (1L015, 1L020) are made up of a single row of Buildings (1L015) strung out on one or both sides of a Route of communication (Roads, Railroads, Streams, and Canals), the "town circle" (Built-up Area, 1L020) is positioned at the nearest junction of the communication Routes or at the approximate center of the groups of Buildings.
- R-2179** Where a Wall is around a populated place that is not symbolized as Built-up Area or Shantytown, the Wall symbol shall be omitted but "(Walled)" will be labeled in parentheses below the place name when place name is known.

**CAIRN...1L025 (POINT)**

**FENCE...1L070 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- R-0006** Feature shall not be shown within Built-up Area (1L020).

**GEOPHYSICAL PROSPECTING GRID...1L085 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.

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**FEATURE: GEOPHYSICAL PROSPECTING GRID...1L085 (LINE)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**R-0006** Feature shall not be shown within Built-up Area (1L020).

**HUT...1L100 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**MONUMENT...1L130 (POINT)**

**L-0020** NAM label shall be positioned 0.5 mm from respective side of feature symbol so that wording may be read from left to right except for perpendicular wording which shall be read from bottom to top (east side) of feature.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

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**FEATURE: NATIVE SETTLEMENT...1L135 (AREA)**

**NATIVE SETTLEMENT...1L135 (AREA)**

- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- R-2526 Delete perimeter line between contiguous polygons of Built-up Area (1L020), Native Settlement (1L135), and Shantytown (1L208).
- R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**NUCLEAR ACCELERATOR...1L140 (POINT)**

- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**PIPELINE /PIPE...1L160 (LINE)**

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**FEATURE: PIPELINE /PIPE...1L160 (LINE)**

**D-7017** If a Pipeline/Pipe (Line 1L160) coalesces <0.2 mm with features:  
then displace the Pipeline/Pipe to 0.2mm from these features.

- Line 1L160 Pipeline
- Line 1T030 Power Transmission Line
- Line 1P050 Trail
- Line 1P010 Cart Track
- Line 1Q131 Tunnel
- Line 1U160 Runway
- Line 1P030 Road
- Line 1Q040 Bridge/Overpass/Viaduct
- Line 1N050 RR Siding/RR Spur
- Line 1N010 Railroad Track
- Line 6A000 Administrative Boundary
- Line 2H030 Ditch
- Line 2H020 Canal
- Line 2H140 River/Stream
- Line 2H075 Inland Shoreline
- Line 2A010 Coastal Shoreline

Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-0061** When PRO=000 (Unknown), omit the PRO label.

**L-3517** If feature is elevated (LOC 4), the feature shall be labeled "ELEVATED PIPELINE" and if the feature continues for a long distance (> 725 mm), the label shall be repeated at 152 mm intervals.

**L-3521** The Road (1P030) or Trail (1P050) symbol shall be labeled "UNDERGROUND AQUEDUCT" above and parallel to the Road in a position as not to overprint other type or features.

**L-4260** Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

**R-2031** If an underground Aqueduct (2H010, ATC 3) is coincident with a Road (1P030) or Trail (1P050), the Road or Trail symbol shall be depicted.

**R-2180** Pipelines shall not be shown within Built-up tinted (1L020) areal features.

**PUMPING STATION...1L180 (POINT)**

**G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

**L-0061** When PRO=000 (Unknown), omit the PRO label.

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**FEATURE: PUMPING STATION...1L180 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-2240** Omit feature < 46 m HGT in Built-up Area (1L020), unless LMC 001.

**RUINS...1L200 (AREA)**

**G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-0050** Type sizes per area sizes at map/chart scale: Area features only.

- |          |     |                          |              |
|----------|-----|--------------------------|--------------|
| 06 point | - ≤ | 770 mm sq. area and ≤    | 14 mm width  |
| 07 point | - ≤ | 2,296 mm sq. area and ≤  | 28 mm width  |
| 09 point | - ≤ | 5,192 mm sq. area and ≤  | 44 mm width  |
| 10 point | - ≤ | 9,796 mm sq. area and ≤  | 62 mm width  |
| 12 point | - ≤ | 16,632 mm sq. area and ≤ | 84 mm width  |
| 14 point | - ≤ | 24,960 mm sq. area and ≤ | 104 mm width |
| 16 point | - > | 24,960 mm sq. area       |              |

Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3509** Labeling shall be positioned outside of the feature using hierarchy of placement around the feature symbol. Rule L-3505.

**R-2333** The limiting outline of the Built-up Area tint shall be dropped when it overprints linear features (Streams, Roads, and Railroads, etc.), or if the space between the symbols is < 0.5 mm.

**RUINS...1L200 (POINT)**

**C-0022** The feature (when HGT ≤ 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).



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**FEATURE: RUINS...1L200 (POINT)**

**L-3503** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting  
other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when  
space does not permit labeling within that feature. When SCC = 0  
Drop Window.

**SHANTY TOWN...1L208 (AREA)**

**G-0006** When 2 or more similar area features having matching coded attribution are  
separated by less than 0.5 mm at chart scale, the features will be  
agglomerated.

**G-0010** Coincident similar area features having matching coded attribution will be  
blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-0050** Type sizes per area sizes at map/chart scale: Area features only.

- |            |   |                        |   |              |
|------------|---|------------------------|---|--------------|
| 06 point - | ≤ | 770 mm sq. area and    | ≤ | 14 mm width  |
| 07 point - | ≤ | 2,296 mm sq. area and  | ≤ | 28 mm width  |
| 09 point - | ≤ | 5,192 mm sq. area and  | ≤ | 44 mm width  |
| 10 point - | ≤ | 9,796 mm sq. area and  | ≤ | 62 mm width  |
| 12 point - | ≤ | 16,632 mm sq. area and | ≤ | 84 mm width  |
| 14 point - | ≤ | 24,960 mm sq. area and | ≤ | 104 mm width |
| 16 point - | > | 24,960 mm sq. area     |   |              |

Where area measurements are inconsistent, the larger type size shall be used.  
Where the full range of type sizes is not available for a particular label,  
the closest available type size shall be used.

**R-0029** If an open area exists inside of or is surrounded on three sides by a  
Built-up Area (1L020) and has an area measurement of less than 390,625 square  
meters, or has a minimum width of less than 315 meters, it becomes included  
in the Built-up Area. If an open area exists inside of or is surrounded on  
three sides by a Built-up Area (1L020) and has an area measurement equal to  
or greater than 390,625 square meters, and a minimum width of 315 meters or  
greater, delete the Built-up Area tint and portray the area as an open space.

**R-2002** Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline  
(2H075) and the outline of this feature is too narrow to plot (show to  
scale), it shall be depicted by a single line (common line), that being the  
Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal  
(2H020), Ditch (2H030), or Reservoir (2H130).

**R-2019** The area outline (1L020) limits shall be shown as continuous except for those  
portions of the outline which coincide with any other mapped linear feature.  
These other mapped linear features shall become the Built-up Area limits and  
shall be retained.

**R-2179** Where a Wall is around a populated place that is not symbolized as Built-up  
Area or Shantytown, the Wall symbol shall be omitted but "(Walled)" will be  
labeled in parentheses below the place name when place name is known.

**R-2333** The limiting outline of the Built-up Area tint shall be dropped when it  
overprints linear features (Streams, Roads, and Railroads, etc.), or if the  
space between the symbols is < 0.5 mm.

**R-2526** Delete perimeter line between contiguous polygons of Built-up Area (1L020),  
Native Settlement (1L135), and Shantytown (1L208).

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**FEATURE: SHANTY TOWN...1L208 (AREA)**

- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**SNOW SHED /ROCK SHED...1L210 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

- R-2254** If a Snow Shed/Rock Shed (1L210) falls on more than one sheet, it will be labeled on both.

- X-8108** If a feature is not associated with (touching) a road (1P030) or railroad track (1N010), omit the feature.

**SNOW SHED /ROCK SHED...1L210 (POINT)**

- C-0023** The feature symbology shall be positioned such that the longest axis of the symbol is aligned coincident with the centerline of the associated road (1P030), railroad track (1N010), or RR siding/RR spur (1N050) feature.
- G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: SNOW SHED /ROCK SHED...1L210 (POINT)**

**X-8108** If a feature is not associated with (touching) a road (1P030) or railroad track (1N010), omit the feature.

**TOWER (NON- COMMUNICATION)...1L240 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**WALL...1L260 (LINE)**

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-3610** Walls surrounding cities or parts of cities which are symbolized as Built-up Areas shall be indicated by the Wall symbol and the word "(walled)" added in parentheses below the place name label (NAM).

**R-0009** Show Walls (1L260) when they are outstanding landmarks (LMC 1) that exist across great expanses (≥ 1250 meters) of open country otherwise devoid (have ≤ 10) of cultural features.

**R-2178** When a Wall symbol (1L260) coalesces with Built-up Area (1L020) outline, or Shantytown (1L208) outline, omit Built-up Area or Shantytown outline, and show Wall with Built-up Area tint only.

**R-2179** Where a Wall is around a populated place that is not symbolized as Built-up Area or Shantytown, the Wall symbol shall be omitted but "(Walled)" will be labeled in parentheses below the place name when place name is known.

**GRAIN ELEVATOR...1M030 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

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**FEATURE: GRAIN ELEVATOR...1M030 (POINT)**

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**SILO...1M050 (POINT)**

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**TANK...1M070 (POINT)**

D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

L-0061 When PRO=000 (Unknown), omit the PRO label.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3519 If a Tank is surrounded by a Levee /Dike (4B090, EF1002), it shall be labeled oil Tank, gas Tank, or other type Tank and placed according to Rule L-3505.

L-4010 If PRO=019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.

L-4016 When LOC = 3 (On ground surface), omit LOC window.

L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

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**FEATURE: TANK...1M070 (POINT)**

- R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.
- R-2027 All features are depicted in arid regions of the world.

**WATER TOWER...1M080 (POINT)**

- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-5040 If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"
- O-3008 If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.
- R-0046 When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**RAILROAD TRACK...1N010 (LINE)**

- D-1501 If railroad tracks (1N010) and parallel sidings (1N050) symbols coalesce at map scale, the siding symbol shall be displaced 0.25 mm from the railroad symbol.
- D-1650 If two Railroads are on separate roadbeds, and the symbols coalesce, the spacing between rail lines shall be 3.0 mm. When the distance between two parallel railroads is too small to plot to scale without the symbols coalescing, the distance between the center lines is exaggerated to 3.0 mm.
- D-7029 If a Railroad Track (Line 1N010) coalesces < 0.2 mm with features: then displace the Railroad Track to 0.2 mm from those features.
- Line 1N010 Railroad Track  
Line 2H030 Ditch  
Line 2H020 Canal  
Line 2H140 River/Stream  
Line 2H075 Inland Shoreline  
Line 2A010 Coastal Shoreline
- Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space
- D-7030 If a Railroad Track (Line 1N010) is coincident with a Tunnel (Line or Point 1Q131) or Snowshed (Line or Point 1L210), then suppress that section of railroad track.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-3614 Where the number of Railroad Tracks (LTN >= 3), the information shall be shown by labeling and positioned parallel to and above the Railroad symbol and repeated at intervals of >= 100 mm to <= 150 mm.
- L-3615 The label indicating the number of Tracks (LTN) shall be positioned parallel to the symbol and <= 2.5 mm from the Point of Change (9D015) symbol.

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**FEATURE: RAILROAD TRACK...1N010 (LINE)**

- L-3616 Where an operating Railroad having additional Tracks under construction, the feature shall be shown by the symbol of the operating Track(s) and shall be labeled, indicating the trackage under construction, and parallel to the symbol (example: "Two additional Tracks under construction").
- L-3617 All labels of Railroads shall be positioned parallel to and above the symbol and shall be repeated  $\geq 12.5$  mm.
- L-3618 Non operating car lines shall be identified by a label positioned parallel to and 0.25 mm above the symbol ("abandoned", "destroyed", or "construction").
- L-3619 If the dismantled car line is not used as a Road and the symbol is  $\geq 50$  m in length at map scale, the label "dismantled car line" shall be positioned parallel to the symbol.
- L-3620 If source information is insufficient to position a feature (Railroad, car line, or Aerial Cableway) in its exact alignment, the feature shall be shown in its symbolization and shall be labeled "approximate alignment" positioned parallel to the symbol.
- L-3621 A Point of Change symbol shall be positioned vertical to the feature where the change of alignment becomes approximate. The label "approximate alignment" shall be positioned  $\leq 0.25$  mm from the Point of Change symbols at the beginning and end of the section that is approximate. The label shall be aligned parallel to the feature.
- L-3622 The label "Causeway" shall be positioned parallel to the symbol and shall be repeated at intervals of  $\geq 75$  mm.
- L-3631 If LTN  $< 3$ , no LTN label is required. Delete the word "Track".
- L-3632 If LTN  $\geq 3$ , the number label is required with the word "Track".
- L-3633 Remove "EXS" window when EXS = 28, operational.
- L-3634 If RGC 2 or 3, no label is required.
- L-3635 If attribute window identifier is not known, requirement to label not applicable.
- L-3636 If RRC = 3, label "Monorail".
- L-3637 If RRC = 8, label "Logging".
- L-3638 If LOC = 4, label "Elevated", otherwise no labeling required.
- L-3649 If Railroad (1N010) is coincident with Road (1P030), label as "Railroad in road".
- L-4284 If RGC is 001, label "Broad".  
If RGC is 003, delete RGC label.
- O-3003 When a dismantled Railroad is used as a Road, the feature shall be shown as a Road (1P030) with no reference to the Railroad required.
- O-3004 Where a dismantled Railroad is not used as a Road the feature shall be labeled "dismantled Railroad" parallel and above (0.5 mm) the representative symbol.
- O-3010 If a Railroad (1N010) and a Road (1P030) are coincident, then the following rule shall apply: Delete railroad symbology from coincident portions(s) of road and center the label above the Road Railroad coincident segment(s).
- R-2195 All main line Railroads (1N010) shall be shown.
- R-2196 When a narrow gauge (RGC 2) Railroad occurs on the same roadbed with a normal or broad gauge Railroad, only the wider gauge Railroad shall be symbolized. If this occurs over a length of the Railroad bed  $\geq 125$  mm at map scale, labeling shall be positioned parallel to the symbol identifying the narrower gauge Railroad. Example:

1 meter gauge railroad on same roadbed

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**FEATURE: RAILROAD TRACK...1N010 (LINE)**

- R-2197 When Railroad Track, LTN  $\geq$  2, are in juxtaposition, each track gauge shall be shown with its own symbol. The cross ticks are staggered, at normal spacing, to each track.
- R-2198 Car lines shall not be shown within Built-up tinted areal (1L020) features.
- R-2601 When a Railroad (1N010) Main line/Branch line (RRC 1 or 3) enters a Railroad Yard (1N080), the Main line/Branch line shall remain at its portrayed lineweight whether or not the track terminates at, in or passes through the yard feature.
- S-0103 When a Road (1P030) or a Railroad (1N010) coincide or coalesce at map scale. when on the same Bridge (1Q040), the Railroad (1N010) shall be suppressed to a distance of 0.25 mm back from the wing ticks at each end of the bridge.
- S-7030 If a Railroad Track (1N010) is coincident with features P1Q131 (Tunnel), or L1Q131 (Tunnel), then suppress that section of the Railroad Track.

**RR SIDING /RR SPUR...1N050 (LINE)**

- D-7028 If a RR Siding/RR Spur (Line 1N050) coalesces  $<$  0.2 mm with features: then displace the Railroad Siding/RR Spur to 0.2 mm from those features/

Line 1N050 RR Siding/RR Spur  
Line 1N010 Railroad Track  
Line 2H030 Ditch  
Line 2H020 Canal  
Line 2H140 River/Stream  
Line 2H075 Inland Shoreline  
Line 2A010 Coastal Shoreline

Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space

- G-0012 Area and line features will be generalized to detail compatible with scale.

- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

- L-3634 If RGC 2 or 3, no label is required.

- L-4284 If RGC is 001, label "Broad".  
If RGC is 003, delete RGC label.

**RR YARD...1N080 (AREA)**

- G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

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**FEATURE: RR YARD...1N080 (AREA)**

- G-0012 Area and line features will be generalized to detail compatible with scale.
- O-0001 Depict only a representative number of tracks (light trunk lineweight) within a Railroad Yard (1N080), running parallel to the longest axis, and spaced 0.5mm between representative pattern lines at map/chart scale.
- O-0002 When Railroad Yard (1N080), or any part, is an area feature and does not converge on itself (open at one end), no hardline lineweight symbol shall be shown closing or connecting the feature symbol at the open end.

**TRAMWAY / INCLINE RAILWAY...1N090 (LINE)**

- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**CART TRACK...1P010 (LINE)**

- D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- O-0004 For Road (1P030, TUC 4), Cart Track (1P010, TUC 18), and Trail (1P050) within Built-Up Area (1L020); Symbolize the portion of the feature within the Built-Up Area (1L020) as white 1P03L007.
- R-0003 Where a Road, Cart Track, Trail coincides with an underground Pipeline, only the Road or Trail shall be shown.
- R-2186 Omit all Roads which do not connect with another Road or do not have another feature symbol as a destination.
- R-2187 In areas of very dense Road (1P030) symbolization, omit all lower class Cart Tracks (1P010) and Trails (1P050).

**INTERCHANGE...1P020 (LINE)**

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**INTERCHANGE...1P020 (POINT)**

- G-0012 Area and line features will be generalized to detail compatible with scale.
- R-2233 Feature under construction (EXS 005), to be operational (EXS 028) by the time the map in progress is to be complete, shall be symbolized as operational.

**ROAD...1P030 (LINE)**

- D-1510 When a road (1P030) of any classification enters a "hairpin turn" condition, such as in a steep mountainous region, displace the coalescing road symbol apart 0.15mm (symbol - edge to edge).
- D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.
- D-7027 If a road (Line 1P030) is coincident with features:  
then suppress that section of the road.
- Point 1Q131 Tunnel  
Line 1Q131 Tunnel
- Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space

- G-0012 Area and line features will be generalized to detail compatible with scale.



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**FEATURE: ROAD...1P030 (LINE)**

- L-3600** Roads under construction shall be indicated by labeling construction or const. added parallel and above to the symbol reading left to right as viewed from the south/east neatlines.
- L-3602** Names of important highways (USE 4 and USE 23) shall be shown, above symbol and not to overprint other feature detail.
- L-3622** The label "Causeway" shall be positioned parallel to the symbol and shall be repeated at intervals of  $\geq 75$  mm.
- L-3635** If attribute window identifier is not known, requirement to label not applicable.
- L-3639** If  $LTN < 3$ , no LTN label is required. Delete the word "Lane".
- L-3640** If  $LTN \geq 3$ , number label is required with the word "Lane".
- L-3649** If Railroad (1N010) is coincident with Road (1P030), label as "Railroad in road".
- L-3955** When an elevated highway is  $\geq 12.5$  mm long at map scale, it shall be labeled "ELEVATED" parallel to the Road.
- L-4016** When  $LOC = 3$  (On ground surface), omit LOC window.
- L-5015** If ACC attribute value is 002 (approximate), then feature symbol shall be accompanied with descriptive label "approximate alignment" or abbreviation "A.P.A" if limited space prevails, in Swiss lower case type in print color #58600 Black-Solid.
- O-0004** For Road (1P030, TUC 4), Cart Track (1P010, TUC 18), and Trail (1P050) within Built-Up Area (1L020); Symbolize the portion of the feature within the Built-Up Area (1L020) as white 1P03L007.
- O-3010** If a Railroad (1N010) and a Road (1P030) are coincident, then the following rule shall apply: Delete railroad symbology from coincident portion(s) of road and center the label above the Road Railroad coincident segment(s).
- R-0060** Retain any road (1P030) of any classification that is  $< 12.5$  mm at map scale when part of the main road. Example: A two lane road that changes to a 3 or 4 lane road, and back again. When this condition exists, portray at the lower road classification.
- R-2172** When the classification of a Road (1P030) is unknown, it shall be symbolized as a fair or dry weather, loose surface Road. (WTC 002 and  $LTN=any$ ,  $RST=003$ )
- R-2175** Add Point of Change (9D015) ticks at the beginning and end of Roads labeled  $LTN \geq 3$ .
- R-2176** LTN labels shall be positioned adjacent to Point of Change (9D015) ticks on road stretches  $\geq 2.0$  mm at map scale.
- R-2181** Route Markers (1Q116) are positioned on beginning and ending of measured Road when more than 2 kilometers.
- R-2182** Route Markers are centered within a Built-up Area.
- R-2185** If space permits - show the following by order of retention\*
1. Alternate Routes
  2. If more than 2, use highest class (see class list)
  3. If class are the same, choose shortest route.
- \* Selection shall be based on classification, continuity, destination, and importance.
- R-2186** Omit all Roads which do not connect with another Road or do not have another feature symbol as a destination.
- R-2188** When a Road classification is such that Road may be in more than one classification category, the lesser classification category shall be symbolized.

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**FEATURE: ROAD...1P030 (LINE)**

- R-2189 Add a Point of Change (9D015) symbol between dual and other multiple lane highways at top side of Road symbol depicted, when LTN  $\geq$  3.
- S-1010 Suppress any road (1P030) of any classification, cart track (1P010), or trail (1P050) that intersects one side, and that is  $<$  7.5 mm at finishing scale, and does not terminate at a cultural feature. Exception: Any road (1P030), cart track, or trail must be retained when needed to complete the network.

**TRAIL...1P050 (LINE)**

- D-1652 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-3603 In areas of sparse culture, names of Trails (1P050) shall be shown, when known.
- L-3604 Caravan Routes shall be identified by name and symbolized as a Trail (1P050) in arid or semi-arid region. Label shall be placed above parallel to the feature and repeating where necessary.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- L-4033 When WTC=000 (Unknown) or 002 (Fair/Dry Weather), omit WTC window.
- O-0004 For Road (1P030, TUC 4), Cart Track (1P010, TUC 18), and Trail (1P050) within Built-Up Area (1L020); Symbolize the portion of the feature within the Built-Up Area (1L020) as white 1P03L007.
- R-0002 Fords for Trails shall be shown only in area  $\geq$  125 mm x 125 mm at map scale and with  $\leq$  10% of Road features.
- R-0003 Where a Road, Cart Track, Trail coincides with an underground Pipeline, only the Road or Trail shall be shown.
- R-2177 When information is not available on whether symbol should be a Trail (1P050) or Cart Track (1P010), the symbolization for Trail (1P050) shall be used.
- R-2186 Omit all Roads which do not connect with another Road or do not have another feature symbol as a destination.
- R-2187 In areas of very dense Road (1P030) symbolization, omit all lower class Cart Tracks (1P010) and Trails (1P050).

**AERIAL CABLEWAY LINE /SKI LIFT LINE...1Q010 (LINE)**

- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-3568 If area is large enough to repeat the label, 130 mm in any direction, then repeat.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**BRIDGE /OVERPASS /VIADUCT...1Q040 (LINE)**

- C-0008 The sides of a linear bridge (1Q040) which is stacked under a road (1P030) shall have the sides of the bridge abutted up against the sides of the road.
- G-0012 Area and line features will be generalized to detail compatible with scale.

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**FEATURE: BRIDGE /OVERPASS /VIADUCT...1Q040 (LINE)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-4008** If NAM = unknown, omit NAM window.

**BRIDGE /OVERPASS /VIADUCT...1Q040 (POINT)**

**C-0006** A point bridge (1Q040) that is stacked under a road (1P030) shall have the sides of the bridge abutted up against the sides of the road, and the bridge oriented so that the bridge is aligned with the road.

**C-0007** The supporting feature shall be aligned with a Cart Track (1P010), Trail (1P050), RR Track (1N010), and RR Siding/RR Spur (1N050).

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-4008** If NAM = unknown, omit NAM window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**BRIDGE SUPERSTRUCTURE...1Q050 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**CONTROL TOWER...1Q060 (POINT)**

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**FEATURE: CONTROL TOWER...1Q060 (POINT)**

- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"
- O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.
- R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**FERRY CROSSING...1Q070 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- R-2232** Omit if not shown in conjunction with a drainage feature.
- R-7193** Feature valid only when coincident with portrayed Road (1P030), or portrayed Railroad (1N010)
- FERRY CROSSING...1Q070 (POINT)**

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**FEATURE: FERRY CROSSING...1Q070 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-2232** Omit if not shown in conjunction with a drainage feature.

**MOORING MAST...1Q110 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**ROUTE MARKER...1Q116 (POINT)**

**R-2181** Route Markers (1Q116) are positioned on beginning and ending of measured Road when more than 2 kilometers.

**R-2182** Route Markers are centered within a Built-up Area.

**TUNNEL...1Q131 (LINE)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: TUNNEL...1Q131 (LINE)**

**L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**TUNNEL...1Q131 (POINT)**

**C-0020** The feature shall be aligned coincident with the associated road (1P030), cart track (1P010), trail (1P050), railroad track (1N010), or RR siding/RR spur (1N050) feature.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-2227** A Tunnel Entrance - Exit (1Q132-point) shall be shown at each point where a Tunnel (1Q131-line) that meets product inclusion conditions begins or ends.

**AIRSPACE...1R010 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-0025** Feature label shall be positioned in the approximate center of feature area so that wording may be read left to right except for perpendicular wording which shall be readable from bottom to top (east side) of feature.

**AIRSPACE...1R010 (LINE)**

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-0018** Feature label shall be positioned a distance of 0.5 mm inside the peripheral limits line so that wording may be read from left to right except for perpendicular wording which shall be read bottom to top (east side) of feature.

**L-0021** Feature label shall be positioned in the center of the facility box so that wording may be read from left to right and provide a 0.25 mm space surrounding respective label.

**NAVAIDS (AERONAUTICAL)...1R030 (POINT)**

**L-0021** Feature label shall be positioned in the center of the facility box so that wording may be read from left to right and provide a 0.25 mm space surrounding respective label.

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**FEATURE: NAVAIDS (AERONAUTICAL)...1R030 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**L-7051** If a NAVAID (1R030) and an aircraft facility (1U030) occupy the same location and have exactly the same name, do not show the name twice. Show the text of the NAVAID with the elevation of the air facility below the NAVAID text box.

**O-0021** If NAVAID (1R030) symbol will be overprinted by Aircraft Facility (1U030) symbol then break facility box and place NST Value (Radio Navigation/Communication) above NAM (Name Category) (graphic representation identical to symbol 1R030P003/P004.)

**DISH...1T010 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**EARLY WARNING RADAR SITE...1T020 (POINT)**

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**FEATURE: EARLY WARNING RADAR SITE...1T020 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**POWER TRANSMISSION LINE...1T030 (LINE)**

**D-7020** If a Power Transmission Line (Line 1T030) coalesces <0.2 mm with features: then displace the Power Transmission Line to 0.2mm from those features.

Line 1T030 Power Transmission Line  
Line 1P050 Trail  
Line 1P010 Cart Track  
Point 1Q131 Tunnel  
Line 1Q131 Tunnel  
Point 1U160 Runway  
Line 1U160 Runway  
Point 1U030 Aircraft Facility  
Point 1P020 Interchange  
Line 1P030 Road  
Point 1Q040 Bridge/Overpass/Viaduct  
Line 1Q040 Bridge/Overpass/Viaduct  
Line 1N050 RR Siding/RR Spur  
Line 1N010 Railroad Track  
Line 6A000 Administrative Boundary  
Line 2H030 Ditch  
Line 2H020 Canal  
Line 2H140 River/Stream  
Line 2H075 Inland Shoreline  
Line 2A010 Coastal Shoreline

Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-4012** If ACC=001 (Accurate), omit ACC window.

**R-0007** Pylon symbols shall be shown for Power Transmission Lines at points of directional change >= 15 degrees and the symbol shall be repeated > 12.5 mm <= 50 mm.

**R-2492** Place Pylon symbols at 12.5 mm intervals along line feature, and also at points of line feature directional change.

**R-7289** If at chart scale a powerline portrayal stops within 4.0 mm distance from a portrayed Built-up Area (1L020), Building (1L015) or Power Plant (1D010) feature then Powerline (1T030) shall be continued to connect with respective feature.

**POWER TRANSMISSION PYLON...1T040 (POINT)**



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**FEATURE: POWER TRANSMISSION PYLON...1T040 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)-001 (Definite), do not show COE label on symbol. If COE-002, label "Doubtful" If COE-003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some >= 46 m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**COMMUNICATIONS FACILITY...1T050 (AREA)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-4008** If NAM = unknown, omit NAM window.

**L-4813** Descriptive terms, e.g., "Canal" shall be shown if the name is not known. If the descriptive word appears in the name, for example, "PANAMA CANAL", the descriptive type shall not be shown, i.e., do not show "Panama Canal Canal".

**TELEPHONE LINE /TELEGRAPH LINE...1T060 (LINE)**

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**FEATURE: TELEPHONE LINE /TELEGRAPH LINE...1T060 (LINE)**

**D-7015** If a Telephone Line/Telegraph Line (Line 1T060) coalesces < 0.2 mm with features, then displace the Telephone Line/Telegraph Line to 0.2 mm from these features:

- Line 1T060 Telephone Line/Telegraph Line
- Line 1L160 Pipeline
- Line 1T030 Power Transmission Line
- Line 1P050 Trail
- Line 1P010 Cart Track
- Line 1Q131 Tunnel
- Line 1U160 Runway
- Line 1P030 Road
- Line 1Q040 Bridge/Overpass/Viaduct
- Line 1N050 RR Siding/RR Spur
- Line 1N010 Railroad Track
- Line 6A000 Administrative Boundary
- Line 2H030 Ditch
- Line 2H020 Canal
- Line 2H140 River/Stream
- Line 2H075 Inland Shoreline
- Line 2A010 Coastal Shoreline

Coalesces - to grow together, blend, mingle  
Coincident- occupy the same space

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection  
neatline.

**R-0008** Telephone Lines shall be shown connecting to forest ranger station /Tower.

**T-0014** Telephone and Telegraph Lines shall be shown only in areas  $\geq 125$  mm x 125 mm with  $\leq 10\%$  if cultural features (landmark).

**TOWER (COMMUNICATION)...1T080 (POINT)**

**D-1652** If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-5040** If COE (Certainty of Existence)=001 (Definite), do not show COE label on symbol. If COE=002, label "Doubtful" If COE=003, label "Reported"

**O-3008** If coalescing features being thinned are a mix of heights (HGT), with some < 46 m and some  $\geq 46$  m, then only the obstruction symbol shall be shown.

**R-0046** When obstructions coalesce at map scale, use Posicut #217 at obstruction point and label with highest obstruction information.

**AIRCRAFT LANDING PAD...1U025 (POINT)**

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**FEATURE: AIRCRAFT LANDING PAD...1U025 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**AIRCRAFT FACILITY...1U030 (POINT)**

**L-0001** HGT is converted to whole feet.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-0039** If Aircraft Facility (1U030) has more than one Runway (1U160), they shall be portrayed by their true runway pattern (length of runway plotted to scale and properly oriented) with a solid circle (masked only for the runway pattern) approximately centered on the runway pattern.

**R-0040** If Aircraft Facility (1U030) has a single runway (1U160), it shall be depicted properly oriented, and centered within a solid circle (masked only for the runway).

**R-0041** If Runway (1U160) pattern is unknown, Aircraft Facility (1U030) shall be symbolized with the open circle centered over the geographic area.

**R-0042** Aircraft Facilities (1U030) that are not usable, closed, or abandoned, but are readily identifiable from the air, shall be portrayed the same as active aircraft facilities, but shall show the annotation ABANDONED, CLOSED, or NOT USABLE, whichever is applicable.

**R-0044** The name (NAM) for an Aircraft Facility (1U030) shall be only one name, that of the military or civil agency exercising control.

**R-0047** All names of Aircraft Facilities (1U030) shall be those established by the national authority. Normally, the selection of Aircraft Facility Name shall be determined by the following order:

1. Military Names
2. Military Command Preference
3. The English text of the national aeronautical source (i.e., NOTAM, AIP, or other official aeronautical publications published by the country.)

**R-7293** If feature falls partially within the chart area and partially beyond the south or west geographic limit of chart, then feature shall be shown in its entirety.

**AIRCRAFT FACILITY BEACON...1U040 (POINT)**

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**FEATURE: AIRCRAFT FACILITY BEACON...1U040 (POINT)**

- G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- R-0051** Place Aircraft Facility Beacon (1U040) symbol at the top of the Aircraft Facility (1U030), when placement at actual position conflicts with symbolized Runway (1U160). If beacon still interferes then place symbol to either side of runway(s) for clarity.

**OVERRUN /STOPWAY...1U130 (LINE)**

- O-6201** Omit feature if associated with a point runway (1U160) and add LEN of feature to LEN of associated point runway (1U160).
- R-6060** Feature should be combined with Runway (1U160) to form a single linear feature of Runway (1U160).

**RUNWAY...1U160 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-0002** ZVL is converted to whole feet.
- L-0041** If RST is 0 (unknown), then label with lower case "u" to the total runway label.
- L-0042** If RST is 5 (Natural), or 7 (Temporary), then label with lower case "s" added to the total runway label.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-7050** All text associated with airfields should be center justified. Example:

ABANDONED  
SOGGY DRY LAKE/50/s  
2881

- R-0045** The length of the longest runway (in feet) shall be shown for more than one (>1) runway in a pattern.

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**FEATURE: RUNWAY...1U160 (LINE)**

R-7293 If feature falls partially within the chart area and partially beyond the south or west geographic limit of chart, then feature shall be shown in its entirety.

**RUNWAY...1U160 (POINT)**

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

L-0002 ZVL is converted to whole feet.

L-0041 If RST is 0 (unknown), then label with lower case "u" to the total runway label.

L-0042 If RST is 5 (Natural), or 7 (Temporary), then label with lower case "s" added to the total runway label.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-7050 All text associated with airfields should be center justified. Example:

ABANDONED  
SOGGY DRY LAKE/50/s  
2881

R-7293 If feature falls partially within the chart area and partially beyond the south or west geographic limit of chart, then feature shall be shown in its entirety.

**COASTAL SHORELINE...2A010 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

O-3005 Shorelines of Open Water areal features shall be dropped at the points of coincidence with a Dam symbol (2I020) and other man made features.

R-2000 Where Marsh (5D040), Swamp (5D030), or any other vegetation grows down to and into the body of water, the shoreline shall be delineated as an approximate Shoreline (2A010, ACC-002).

R-2002 Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).

R-2022 Coastal Shorelines (2A010) of tidal waters (to include Shorelines of Islands (4B135)) shall be delineated as the outline of all coastal features at Mean High Water (VDC 007). This also includes mangrove (VEG 019) and nipa (VEG 016).

R-2023 Shorelines (2A010 Coastal and 2H075 Inland) which are coincident with features 2B190 Pier/Wharf, 2B230 Seawall, 1P030 Road, 1N010 Railroad Tracks, 1N050 Siding/Spur, and 1L260 Wall are not shown.

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**FEATURE: COASTAL SHORELINE...2A010 (LINE)**

- R-2316** Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.
- X-8106** If a coastal shoreline (2A010) is inside of open water (2A040) (i.e., not the shoreline to a large landmass area) and the coastal shoreline (2A010) is not coincident with an island (4B135), omit the feature.

**FORESHORE...2A020 (AREA)**

- G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.

**OPEN WATER (EXCEPT INLAND)...2A040 (AREA)**

- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

- L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

- R-2316** Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

- R-3708** A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**BREAKWATER...2B040 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.

**JETTY...2B140 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.

**PIER, WHARF...2B190 (AREA)**

- G-0012** Area and line features will be generalized to detail compatible with scale.

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**FEATURE: PIER, WHARF...2B190 (LINE)**

**PIER, WHARF...2B190 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

**SEAWALL...2B230 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

**LIGHT...2C050 (POINT)**

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**REEF...2D120 (AREA)**

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

R-3708 A blue 31% tint shall not overprint other blue 31% tints. If two blue tinted symbols, or one tinted symbol and water tint overprint, only one 31% tint shall be shown in the area.

**REEF...2D120 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

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**FEATURE: REEF...2D120 (LINE)**

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**REEF POOL...2D125 (AREA)**

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

**ROCK...2D130 (POINT)**

G-0005 A cluster of 3 or more coalescing similar point features having matching coded attribution will be aggregated to form an area multiple feature outline.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:

- a. northeast (preferred position).
- b. southeast (1st alternate).
- c. northwest (2nd alternate)
- d. southwest (3rd alternate)
- e. top-centered (4th alternate)
- f. bottom-centered (5th alternate)

(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)

2. Minimum space between type placement and feature symbol is 0.5 mm.

3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

T-0836 When central graphic symbols of hydrographic dangers, excluding the danger curve (dotted line) overprint or coalesce, they shall be thinned, with preference given to retaining those dangers with the shallower depth (HDP), if it is known. Danger curves shall not be affected by this rule.

**WRECK...2D180 (POINT)**

**DEPTH CONTOUR...2E015 (LINE)**

L-3576 All Contour values shall be placed so as to be readable from either the south or east edges of the sheet graphic.

**CURRENT ARROW /FLOW ARROW...2G010 (POINT)**

C-0014 The feature shall be aligned with a river/stream (2H140), canal (2H020), orditch (2H030).

R-0031 If River /Stream (2H140) is Perennial (HYC 8) and  $\leq 3\%$  slope along this feature and no contours (3A010) are present, then add Flow Arrow symbol (2G010P004) to indicate direction of water flow.

R-2034 If River /Stream (2H140) is linear and is perennial (HYC 8), Rule R-2168 shall apply with one exception: the arrows shall be placed above the feature and parallel to the linear feature at a distance of 0.5 mm (.020").



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**FEATURE: CURRENT ARROW /FLOW ARROW...2G010 (POINT)**

R-2168 When a River /Stream (2H140) is areal and extends from any sheet border to any other sheet border, to include the same sheet border, the Flow Arrow shall be placed within and (1) parallel and centered to the longest axis of the areal feature 3.5 mm in from the sheet border and again 3.5 mm in from the exiting sheet border. The remaining areal (2H140) shall be proportionally filled between these two arrows with additional arrows placed at a distance of  $\geq 15.0$  mm to  $\leq 20.0$  mm between any arrow. All arrows shall be positioned so as not to overprint other features or type (at map scale).

**AQUEDUCT...2H010 (LINE)**

- D-1654 When symbolized feature is  $< 0.2$  mm from a line feature, displace to 0.2 mm (map scale).
- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-3518 If feature is elevated (LOC 4), the feature shall be labeled "ELEVATED AQUEDUCT." When feature continues for a long distance ( $> 25$  mm), the label shall be repeated at 152 mm intervals, and is not to overprint any type or symbology.
- L-3521 The Road (1P030) or Trail (1P050) symbol shall be labeled "UNDERGROUND AQUEDUCT" above and parallel to the Road in a position as not to overprint other type or features.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- L-3641 If an elevated segment is short (i.e.,  $\leq 25$  mm at map scale), then the feature is labeled only with the word "Elevated".
- R-2002 Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).
- R-2031 If an underground Aqueduct (2H010, ATC 3) is coincident with a Road (1P030) or Trail (1P050), the Road or Trail symbol shall be depicted.
- R-2433 Karez (2H010, ATC 001, LOC 001) shall be shown as an underground conduit which carries water from its source to points of distribution. A shaft or outlet which provides entry for construction and maintenance shall be shown at exact locations except when  $< 1.25$  mm apart.

**AQUEDUCT...2H010 (POINT)**

- D-1654 When symbolized feature is  $< 0.2$  mm from a line feature, displace to 0.2 mm (map scale).
- R-0034 Show actual aqueduct maintenance shafts (ATC 001) at all changes in aqueduct (2H010, LOC 003) direction when the shafts are  $\geq 5.0$  mm apart at map scale.
- R-0035 Show actual Aqueduct maintenance shafts (ATC 001) between the changes in direction at 5.0 mm interval at map scale.

**CANAL...2H020 (LINE)**

- L-3513 If a Canal is abandoned (EXS 006), any part containing water shall be considered as a Canal in use, however, this portion shall be labeled "ABANDONED CANAL."
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- L-3650 If any part of a Canal (2H020) is dry (HYC 3) or contains little water, then it shall be labeled as "Abandoned canal".

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**FEATURE: CANAL...2H020 (LINE)**

- O-0006 Incorporate shorter Canals (2H020) and Ditches (2H030) <=2500 m LEN as a connector feature and incorporate spacing of >=1500 m. Always retain the outermost limits of these features before generalization takes place.
- R-2002 Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).

**DITCH...2H030 (LINE)**

- D-1632 If features coalesce at map scale, when shown in their true positions, they shall be displaced 0.2 mm from one another.
- D-1653 If one symbol coalesces with another symbol for the same type feature, displace symbols to allow a minimum separation of 0.2mm.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- O-0006 Incorporate shorter Canals (2H020) and Ditches (2H030) <=2500 m LEN as a connector feature and incorporate spacing of >=1500 m. Always retain the outermost limits of these features before generalization takes place.
- R-2002 Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).
- R-2116 Contour values (3A010) shall be labeled close enough to the feature so as not to overprint or touch a feature.
- R-2117 Spot Elevations (3A030) shall be shown along Ditches (2H030).
- R-7294 If window size is >= 5,000 m x 5,000 m and contains multiple features smaller than specified inclusion condition, then a label "Numerous ditches" shall be applied in center of respective area.

**FILTRATION /AERATION BEDS...2H040 (AREA)**

- G-0012 Area and line features will be generalized to detail compatible with scale.
- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

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**FEATURE: FILTRATION /AERATION BEDS...2H040 (AREA)**

- L-3509** Labeling shall be positioned outside of the feature using hierarchy of placement around the feature symbol. Rule L-3505.
- R-2002** Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).

**FISH HATCHERY...2H050 (AREA)**

- G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**FLUME...2H060 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3508** If feature is elevated (LOC 4), the feature shall be labeled "ELEVATED FLUME." When feature continues for a long distance (over 175 mm), the label shall be repeated at 152 mm intervals.
- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- L-3641** If an elevated segment is short (i.e.,  $\leq 25$  mm at map scale); then the feature is labeled only with the word "Elevated".

**FORD...2H070 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: FORD...2H070 (LINE)**

- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- R-0002** Fords for Trails shall be shown only in area  $\geq 125$  mm x 125 mm at map scale and with  $\leq 10\%$  of Road features.
- R-2232** Omit if not shown in conjunction with a drainage feature.
- R-3902** Retain feature only when associated with Cart Track (1P010), Road (1P030), or Trail (1P050).

**FORD...2H070 (POINT)**

- G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast: (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- O-3005** Shorelines of Open Water areal features shall be dropped at the points of coincidence with a Dam symbol (2I020) and other man made features.
- R-2232** Omit if not shown in conjunction with a drainage feature.
- R-3902** Retain feature only when associated with Cart Track (1P010), Road (1P030), or Trail (1P050).

**INLAND SHORELINE...2H075 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- O-3005** Shorelines of Open Water areal features shall be dropped at the points of coincidence with a Dam symbol (2I020) and other man made features.
- R-2000** Where Marsh (5D040), Swamp (5D030), or any other vegetation grows down to and into the body of water, the shoreline shall be delineated as an approximate Shoreline (2A010, ACC-002).
- R-2002** Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).
- R-2023** Shorelines (2A010 Coastal and 2H075 Inland) which are coincident with features 2B190 Pier/Wharf, 2B230 Seawall, 1P030 Road, 1N010 Railroad Tracks, 1N050 Siding/Spur, and 1L260 Wall are not shown.

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**FEATURE: INLAND SHORELINE...2H075 (LINE)**

- R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.
- X-8105 If an inland shoreline (2H075) is not coincident with an island (4B135) or lake (2H080), omit the feature.

**LAKE /POND...2H080 (AREA)**

- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.
- L-3507 In regional areas where there are numerous small Lakes or Ponds (2H080) or Reservoirs (2H130) too small to meet the inclusion conditions in WID, the area shall carry a representative label as applicable:  
NUMEROUS LAKES (NUMEROUS SALT LAKES [if salt])  
NUMEROUS PONDS  
NUMEROUS RESERVOIRS  
These labels shall be repeated every 152 mm apart in any direction, depending on area size of condition and placed so as not to overprint other type or symbols.
- L-4821 Descriptive type or name shall be positioned in the following priority:
- (1) Horizontal within area feature, if the type will fit entirely within the area. If type consists of more than one word, it may be split into several lines if necessary.
  - (2) Use Rule L-4722 if type will not fit in area.
- R-2001 A water surface elevation (ZVL) shall be required if this feature is the largest water body in a 15' x 15' quadrangle where the minimum feature size >= 1,394 sq mm area (at map scale).
- R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

**LAND SUBJECT TO INUNDATION...2H090 (AREA)**

- G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated..

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**FEATURE: LAND SUBJECT TO INUNDATION...2H090 (AREA)**

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

**PENSTOCK...2H110 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3596 If feature is elevated (LOC 4), the feature shall be labeled "ELEVATED PENSTOCKS." When the condition continues for a long distance (> 175 mm), the label shall be repeated at 152 mm intervals.

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-3641 If an elevated segment is short (i.e., <= 25 mm at map scale), then the feature is labeled only with the word "Elevated".

**RAPIDS...2H120 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-0006 Feature shall not be shown within Built-up Area (1L020).

R-2017 All Waterfalls (2H180) and Rapids (2H120) shall be depicted only if they exist outside of a Built-up Area (1L020).

R-2232 Omit if not shown in conjunction with a drainage feature.

R-2429 Rapid symbols shall be shown on double-line River/Stream (2H140) perpendicular to the River/Stream centerline. The Rapids LEN is to be considered coincident with the River/Stream centerline.

X-8101 If a feature is not associated with (touching) a river (2H140), omit the feature.

**RAPIDS...2H120 (POINT)**

G-0004 The feature shall be oriented perpendicular (90 degrees) with respect to natural area drainage features (2H140 River/Stream).

G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

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**FEATURE: RAPIDS...2H120 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-0006** Feature shall not be shown within Built-up Area (1L020).

**R-2017** All Waterfalls (2H180) and Rapids (2H120) shall be depicted only if they exist outside of a Built-up Area (1L020).

**R-2232** Omit if not shown in conjunction with a drainage feature.

**X-8101** If a feature is not associated with (touching) a river (2H140), omit the feature.

**RESERVOIR...2H130 (AREA)**

**G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**R-2000** Where Marsh (5D040), Swamp (5D030), or any other vegetation grows down to and into the body of water, the shoreline shall be delineated as an approximate Shoreline (2A010, ACC=002).

**R-2002** Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).

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**FEATURE: RESERVOIR...2H130 (AREA)**

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

**RIVER /STREAM...2H140 (AREA)**

L-0062 Label area feature with upper case type within its limits and centered between sides with a proportional size if the width of the feature will allow its inclusion. However, should the feature be too narrow, then place the type 0.5mm above and parallel to the feature. When the feature is continuous, repeat label approximately every 30 to 40 cm for either situation, or at least two times, length permitting. In either condition (in or above feature), curve the type when necessary to the curvature of the feature. Should the feature change back and forth between an area and a line feature, the type style will change from upper case type for the area portions, to upper and lower case type for the linear portions. The repeat dimensions remain the same.

L-3506 Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

O-3007 Flow Arrows shall be depicted when River /Stream (2H140) is perennial (HYC 8), when flow direction is not known.

R-0031 If River /Stream (2H140) is Perennial (HYC 8) and  $\leq 3\%$  slope along this feature and no contours (3A010) are present, then add Flow Arrow symbol (2G010P004) to indicate direction of water flow.

R-2009 In arid ( $< 10$  inches of rainfall/year) and semi-arid ( $\geq 10$  and  $\leq 20$  inches of rainfall/year) regions of the world, all River /Streams (2H140) are depicted.

R-2010 If River /Stream (2H140) cannot be definitely determined, the feature shall be depicted as unsurveyed (ACC 002).

R-2014 Deltas shall be represented by all double-line and main-flow River/Stream (2H140) distributaries.

R-2015 The tidal (TID 002) limits of the delta shall be the outline of the feature at Mean High Water (VDC 007).

R-2299 Rivers (2H140) under the influence of the rise and fall of the tide (TID-002) shall have their banks delineated at the high water line. Inland of tidal influence (TID-001), average water level shall be shown for perennial rivers (HYC-008), and flood stage shall be shown for intermittent (HYC-006), or dry (HYC-003) rivers.

R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

R-2429 Rapid symbols shall be shown on double-line River/Stream (2H140) perpendicular to the River/Stream centerline. The Rapids LEN is to be considered coincident with the River/Stream centerline.

S-1003 Single-line distributaries River/Stream (2H140) shall be added in an amount sufficient to represent the characteristic pattern of the delta (outside limits, main channels).

**RIVER /STREAM...2H140 (LINE)**

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

O-3007 Flow Arrows shall be depicted when River /Stream (2H140) is perennial (HYC 8), when flow direction is not known.



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**FEATURE: RIVER /STREAM...2H140 (LINE)**

- R-0031 If River /Stream (2H140) is Perennial (HYC 8) and  $\leq 3\%$  slope along this feature and no contours (3A010) are present, then add Flow Arrow symbol (2G010P004) to indicate direction of water flow.
- R-2008 In Tropical ( $> 60$  and  $\leq 80$  inches of rainfall per year) and Semi-tropical ( $> 20$  and  $\leq 60$  inches per year average) areas of the world, all River/Stream (2H140) are shown, with the exception that smaller tributaries ( $\leq 3,175$  m in length (LEN) shall be omitted.
- R-2009 In arid ( $< 10$  inches of rainfall/year) and semi-arid ( $\geq 10$  and  $\leq 20$  inches of rainfall/year) regions of the world, all River /Streams (2H140) are depicted.
- R-2299 Rivers (2H140) under the influence of the rise and fall of the tide (TID=002) shall have their banks delineated at the high water line. Inland of tidal influence (TID=001), average water level shall be shown for perennial rivers (HYC=008), and flood stage shall be shown for intermittent (HYC=006), or dry (HYC=003) rivers.
- R-2316 Symbols and associated area patterns of underpassing features (except drainage shorelines) are broken for all bridges, except footbridges. This rule does not apply to land tint on Combat Charts.

**RIVER OR STREAM VANISHING POINT...2H145 (POINT)**

- C-0002 The feature will be aligned with a river/stream (2H140).
- G-0008 Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- R-2013 River Vanishing Point /Stream Vanishing Point (2H145) shall be depicted at their points of disappearance.
- R-2232 Omit if not shown in conjunction with a drainage feature.
- R-3901 The apex of feature to point uphill, to align with direction of flow (DOF).
- X-8102 If a feature is not associated with (touching, stacked\_on, etc.) a linear river (2H140), omit the feature.

**SALT EVAPORATOR...2H150 (AREA)**

- G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: SALT EVAPORATOR...2H150 (AREA)**

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**SABKHA...2H160 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

**R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

**R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**SPRING...2H170 (POINT)**

**G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

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**FEATURE: SPRING...2H170 (POINT)**

- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- R-3900** Squiggly tail of symbol to point downhill to align with the direction of flow (DOF). If DOF cannot be determined, then DOF shall be 180, which will orient the tail to bottom of the sheet.

**WATERFALL...2H180 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

- X-8101** If a feature is not associated with (touching) a river (2H140), omit the feature.

**WATERFALL...2H180 (POINT)**

- C-0004** The feature shall be oriented perpendicular (90 degrees) with respect to natural area drainage features (2H140 River/Stream).
- G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: WATERFALL...2H180 (POINT)**

**X-8101** If a feature is not associated with (touching) a river (2H140), omit the feature.

**CISTERN...2I010 (POINT)**

**C-0022** The feature (when HGT <= 46 m or when HGT is not a valid attribute on the feature) shall be oriented perpendicular (90 degrees) to a nearby road (1P030), cart track (1P010), trail (1P050), or railroad track (1N010).

**G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**DAM...2I020 (AREA)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**DAM...2I020 (LINE)**

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-0004** Dams (2I020) across single line Streams without a back-up Lake/Pond (2H080) shall not be shown.

**R-2232** Omit if not shown in conjunction with a drainage feature.

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**FEATURE: DAM...2I020 (LINE)**

**S-0102** Suppress Road (TUC4) when Road (TUC 4), Railroad (TUC 3), or Railroad and road (TUC 1) are coincident with a Dam (2I020). Label as "Road on dam" for TUC 4, "Railroad on dam" for TUC 3, and "Railroad and road on dam" for TUC 1.

**V-1013** If MCP = 000, omit MCP window.

**X-8101** If a feature is not associated with (touching) a river (2H140), omit the feature.

**DAM...2I020 (POINT)**

**C-0003** The feature shall be oriented perpendicular (90 degrees) with respect to area drainage features (2H020 Canal, 2H030 Ditch, 2H140 River/Stream).

**R-0004** Dams (2I020) across single line Streams without a back-up Lake/Pond (2H080) shall not be shown.

**R-2232** Omit if not shown in conjunction with a drainage feature.

**S-0102** Suppress Road (TUC4) when Road (TUC 4), Railroad (TUC 3), or Railroad and road (TUC 1) are coincident with a Dam (2I020). Label as "Road on dam" for TUC 4, "Railroad on dam" for TUC 3, and "Railroad and road on dam" for TUC 1.

**V-1013** If MCP = 000, omit MCP window.

**X-8101** If a feature is not associated with (touching) a river (2H140), omit the feature.

**LOCK...2I030 (LINE)**

**G-0012** Area and line features will be generalized to detail compatible with scale.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:

- a. northeast (preferred position).
- b. southeast (1st alternate).
- c. northwest (2nd alternate)
- d. southwest (3rd alternate)
- e. top-centered (4th alternate)
- f. bottom-centered (5th alternate)

(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)

2. Minimum space between type placement and feature symbol is 0.5 mm.

3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**R-2232** Omit if not shown in conjunction with a drainage feature.

**X-8103** If a feature is not associated with (touching, stacked on, etc.) a river (2H140) or canal (2H020) or dam (2I020), omit the feature.

**WATER INTAKE TOWER...2I050 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:

- a. northeast (preferred position).
- b. southeast (1st alternate).
- c. northwest (2nd alternate)
- d. southwest (3rd alternate)
- e. top-centered (4th alternate)
- f. bottom-centered (5th alternate)

(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)

2. Minimum space between type placement and feature symbol is 0.5 mm.

3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: WATER INTAKE TOWER...2I050 (POINT)**

L-5040 If COE (Certainty of Existence)-001 (Definite), do not show COE label on symbol. If COE-002, label "Doubtful" If COE-003, label "Reported"

R-2232 Omit if not shown in conjunction with a drainage feature.

**GLACIAL MORaine...2J020 (AREA)**

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**GLACIER...2J030 (AREA)**

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2120 This feature shall include Contours, when possible to portray them. If not, then form lines shall be used in place of Contours.

**ICE CLIFF...2J040 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2128 When feature coincides with Coastal Shoreline (2A010) or River/Stream (2H140), feature shall replace Coastal Shoreline or River/Stream at coalescence.

**ICE PEAK, NUNATAK...2J060 (POINT)**

**ICE SHELF...2J065 (AREA)**

G-0006 When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3568 If area is large enough to repeat the label, 130 mm in any direction, then repeat.

**PACK ICE...2J070 (AREA)**

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**FEATURE: PACK ICE...2J070 (AREA)**

- G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.
- L-3598** When limits of Pack Ice (2J070) are not known (HSA 0) or are on another map sheet, the following note shall be placed at the approximate center of the water area (2A040): APPROXIMATE MAXIMUM LIMIT OF PACK ICE (MONTH) IS SOUTH OF THIS SHEET
- R-0061** The limit of Pack Ice (2J070) shall represent the average extent of pack ice 1/8 (12.5%) concentration or greater, for the month of greatest extent. The month of greatest extent shall be shown by the HSA attribute.

**SNOW FIELD /ICE FIELD...2J100 (AREA)**

- G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3568** If area is large enough to repeat the label, 130 mm in any direction, then repeat.
- R-2120** This feature shall include Contours, when possible to portray them. If not, then form lines shall be used in place of Contours.

**TUNDRA...2J110 (AREA)**

- G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.

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**FEATURE: TUNDRA...2J110 (AREA)**

- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3562** If area is not large enough to place type within, move to outside and apply point hierarchy Rule L-3505.
- L-3568** If area is large enough to repeat the label, 130 mm in any direction, then repeat.

**CONTOUR (LAND)...3A010 (LINE)**

- L-0002** 2VL is converted to whole feet.
- L-3573** Contour value labeling shall be at or near critical positions. These are:
- a. Tops of ridges.
  - b. Ends of Spurs and saddles.
  - c. Bottoms of valleys.
  - d. Noticeable change in slopes.
  - e. At the sheet edge - approx. 1.25 mm in from sheet edge.
- L-3574** Contours that coincide with the datum plane shall be labeled zero (no value).
- L-3575** Contours that are below the datum plane shall have the values prefixed with the word minus.
- L-3576** All Contour values shall be placed so as to be readable from either the south or east edges of the sheet graphic.
- L-3599** Supplementary Contours shall be labeled at each end of the entire supplementary Contour segment, with additional values placed approximately 70.5 - 120.6 mm from the last one.
- L-3642** Intermediate contours (HQC 2) shall be labeled only in areas of the map where the Index contours (HQC 1) are spread too far apart, so as not to be able to easily interpolate the values of those intermediate contours.
- L-3643** Label Index contours (HQC 1) in any area when separation between Index contours  $\geq$  20.0 mm at map scale.
- L-3644** Label all Supplementary contours (HQC 3).
- L-3986** The Contour values shall be positioned so that they progress in smooth-flowing curves, reading uphill towards the higher elevation. Contour values shall not be positioned upside down.
- L-4036** Outside VOID area  $\geq$  75 mm X 75 mm shall be labeled "LIMITS OF RELIABLE RELIEF" repeated along the perimeter of the contoured area.
- R-0024** If Intermediate Contours (HQC 2) coalesce, then omit coalescing Contours(s). See Rule R-2044.



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**FEATURE: CONTOUR (LAND)...3A010 (LINE)**

- R-0025** Contour values and Spot elevation (3A030) values shall be expressed in feet.
- R-0026** Contour values shall be placed within the Contour (3A010) depression as follows:
- (1) on indexes - first preference.
  - (2) on intermediates - second preference, if no indexes.
- R-0027** If Rule R-2038 does not apply due to the slope, then add supplementaries down to a 25 meter Contour Interval.
- R-0028** Where an Embankment (4B090) Fill (EFI 001) coincides with a contour, the contour shall carry the fill symbol and have ticks added which point down hill from the top of the fill.
- R-2036** Supplementary Contours (HQC 3) shall be depicted in areas with slopes < 10% (for JOG-G only).
- R-2037** Supplementary Contours (HQC 3) shall not be depicted if the prescribed Contour interval is 20 or 25 meters.
- R-2038** The normal Contour interval shall be one of the following:
- (a) 25 meter shall be used when compilation (extraction) or source materials permit such portrayal. 20 meter contouring may be used and is preferred over the 25 meter (20 m and 25 m ranges shall only apply to regions with less than 10% slope). 30 meter shall be used only after conversion from existing topographic map source having Contour intervals at 100 feet.
  - (b) 50 meter Contour selection shall be used for those regions where the predominant slope (> 50% of area) is within the range of >= 10% and <= 20% slope (selection is made by blocks of sheets rather than by one sheet).
  - (c) 100 meter Contour selection shall be those regions where the slope characteristic is predominantly (> 50% of area) more than 20% slope.
  - (d) 200 meter contour selection shall be those regions where the slope characteristic is entirely (100% of area) more than 20% slope.
- R-2039** If it is impossible to join (match) groups or blocks of contours (3A010) with a common interval, then limits of an interval shall coincide with the sheet projection limits of a graphic, so that no graphic contains more than one interval. In such cases, the bleeding edge of a graphic (north edge, east edge) shall carry the contour interval of the remainder of the graphic.
- R-2040** There shall be no attempt made to obtain agreements with join graphics to the east or north, if these sheets are of a different interval.
- R-2043** Where index contours begin to coalesce (< 0.5 mm from adjacent contours for any interval) the following hierarchy shall apply for dropping intermediate contours:
- (a) The two inner-most intermediate contours shall be dropped first.
  - (b) The two outer-most intermediate contours shall be last to be dropped.
- All index contours shall remain unless they coalesce, then apply Rule R-2045.
- R-2044** When coalescing intermediate contours are dropped, they shall stop 0.5 mm from the point of coalescence with each other.
- R-2045** Index contours (HQC 001) shall be drawn continuously throughout the sheet graphic. When they coalesce, this condition shall be represented by a single index contour for the length of the coalescing condition.
- R-2051** Supplementary contours shall be used only where retaining accuracy or unique hypsographic portrayal is necessary.
- R-2085** If Spot Elevation (3A030) are depicted, then all surrounding Contours (3A010) shall be in agreement with the Spot Elevation.
- R-2094** The ticks of the depression contour shall be shortened by one-half if distance between contours are <= 0.40 mm at map scale.

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**FEATURE: CONTOUR (LAND)...3A010 (LINE)**

- R-2097 In deep Depressions, Spot Elevations (3A030 showing ZVL) shall be shown.
- R-2098 Contour values shall be placed within the Depression as follows:  
    (1) only on indexes - first preference  
    (2) intermediates - second preference, if no indexes  
    (3) supplementary
- R-2100 Where the prescribed Contour interval is 30 meters (or multiples thereof), the interval for supplementary Contours (HQC 13) shall be one-half the Contour interval. JOG-G only.
- R-2101 Where the prescribed Contour interval is 50 meters, supplementary Contours shall be one-half the Contour interval. JOG-G only.
- R-2102 Where the prescribed Contour interval is 100 meters or 200 meters, supplementary Contours shall be one-half the Contour interval. If Rule does not apply due to the slope, then add supplementaries down to a 25 meter Contour interval.

**SPOT ELEVATION...3A030 (POINT)**

- L-0004 Normal elevation feature occurring outside Glacier (2J030) or Snow Field/Ice Field (2J100) shall be labeled in Swiss 742, 8 point type in color #58600 Black-Solid.
- L-0005 Highest elevation feature in sheet occurring outside Glacier (2J030) or Snow Field/Ice Field (2J100) shall be labeled in Swiss 742, 12 point type in color #58600 Black-Solid.
- L-0006 Normal elevation feature occurring inside Glacier (2J030) or Snow Field/Ice Field (2J100) shall be labeled in Swiss 742, 8 point type in color #48253 Blue-Solid.
- L-0007 Highest elevation feature in sheet occurring inside Glacier (2J030) or Snow Field /Ice Field (2J100) shall be labeled in Swiss 742, 12 point type in color #48253 Blue-Solid.
- L-3503 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:  
    1. Positional hierarchy:  
        a. northeast (preferred position).  
        b. southeast (1st alternate).  
        c. northwest (2nd alternate)  
        d. southwest (3rd alternate)  
        e. top-centered (4th alternate)  
        f. bottom-centered (5th alternate)  
        (Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)  
    2. Minimum space between type placement and feature symbol is 0.5 mm.  
    3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3645 If a spot elevation (3A030) is highest interpolated height, then add a plus and minus sign (+-) behind the ZVL value.
- L-3647 Approximate Z values (ZVL) shall be depicted with a plus or minus (+-) to the right of the value.
- L-3648 If all of the elevations (ZVL) shown on the graphic are approximate, the plus or minus signs (+-) shall be omitted. A border (marginal) note shall be tailored to reflect this condition. Example: "The accuracy of all elevations shown on the graphic is not within (value) meters."
- R-0025 Contour values and Spot elevation (3A030) values shall be expressed in feet.
- R-0052 Each 15 minute x 15 minute area on the map, as defined by the latitude and longitude grid, should include approximately 3 to 5 normal spot elevations.

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**FEATURE: SPOT ELEVATION...3A030 (POINT)**

**R-2058** Highest elevation on sheet shall be derived from one of two ways, as follows:

- (1) Based on highest photogrammetrically determined height (ZVL)
- (2) Based on highest interpolated height (where one-half of the contour interval is added to the highest contour value).

**R-2063** When an elevation is identified with intersections of Roads (1P030), Railroads (1N010), Streams (2H140), or any crossing combination of the above, also to include Island Shorelines without Contours, the value shall be placed adjacent to the feature. No dot is shown.

**ASPHALT LAKE...4A005 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**GROUND SURFACE...4A010 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: GROUND SURFACE...4A010 (AREA)**

- L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.
- L-3562** If area is not large enough to place type within, move to outside and apply point hierarchy Rule L-3505.
- L-3568** If area is large enough to repeat the label, 130 mm in any direction, then repeat.
- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**SALT PAN...4A020 (AREA)**

- G-0006** When 2 or more similar area features having matching coded attribution are separated by less than 0.5 mm at chart scale, the features will be agglomerated.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**BLUFF /CLIFF, ESCARPMENT...4B010 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.

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**FEATURE: BLUFF /CLIFF, ESCARPMENT...4B010 (LINE)**

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2095 If space is  $\leq 0.20$  mm between Contours, omit ticks on symbol.

**CAVE DWELLING...4B030 (POINT)**

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:

- a. northeast (preferred position).
- b. southeast (1st alternate).
- c. northwest (2nd alternate)
- d. southwest (3rd alternate)
- e. top-centered (4th alternate)
- f. bottom-centered (5th alternate)

(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)

2. Minimum space between type placement and feature symbol is 0.5 mm.

3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

R-2391 The V-part of the symbol (Cave, 4B030) shall mark the location of the entrance, and the shaft of the symbol shall extend in the same direction as the Cave.

**CREVICE /CREVASSE...4B060 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:

- a. northeast (preferred position).
- b. southeast (1st alternate).
- c. northwest (2nd alternate)
- d. southwest (3rd alternate)
- e. top-centered (4th alternate)
- f. bottom-centered (5th alternate)

(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)

2. Minimum space between type placement and feature symbol is 0.5 mm.

3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**CUT LINE...4B071 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

R-2113 Cut Lines (4B071) and Fills (4B090, EFI 001) whose depths and heights do not equal or exceed the Contour interval shall be omitted. Exception: in flat areas (0-10% slope) where the Contour (3A010) interval is large, prominent Cut Lines and Fills shall be included even if they do not equal or exceed the Contour interval.

R-2115 Where a Cut Line (4B071) or Fill (4B090, EFI 001) coincides with a Contour (3A010), the Contour shall be suppressed. The Cut Lines ticks shall point downhill towards the bottom of the cut.

R-2231 Omit from Built-up Area (1L020).

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**FEATURE: CUT LINE...4B071 (LINE)**

R-2269 When a Contour (3A010) coalesces with an Bluff/Cliff, Escarpment (4B010), Crevice, Crevasse (4B060), Esker (4B100), Fault (4B110), or Rock Formation (4B160), the coalescing portion of the Contour (3A010) shall be omitted.

**EMBANKMENT...4B090 (LINE)**

D-1500 Where a Levee/Dike (4B090, EFI002) and River /Stream (2H140) parallel less than 0.5 mm at map scale, the Levee/Dike shall be displaced to establish a 0.5 mm space between.

G-0012 Area and line features will be generalized to detail compatible with scale.

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

R-0028 Where an Embankment (4B090) Fill (EFI 001) coincides with a contour, the contour shall carry the fill symbol and have ticks added which point down hill from the top of the fill.

R-2112 Levees or Dikes (4B090, EFI 002) shall be shown around Tanks (1M070).

R-2113 Cut Lines (4B071) and Fills (4B090, EFI 001) whose depths and heights do not equal or exceed the Contour interval shall be omitted. Exception: in flat areas (0-10% slope) where the Contour (3A010) interval is large, prominent Cut Lines and Fills shall be included even if they do not equal or exceed the Contour interval.

R-2115 Where a Cut Line (4B071) or Fill (4B090, EFI 001) coincides with a Contour (3A010), the Contour shall be suppressed. The Cut Lines ticks shall point downhill towards the bottom of the cut.

R-2171 Where a levee or dike (4B090, EFI 002) coincides with a Contour (3A010), the Contour shall be omitted.

R-2231 Omit from Built-up Area (1L020).

R-2269 When a Contour (3A010) coalesces with an Bluff/Cliff, Escarpment (4B010), Crevice, Crevasse (4B060), Esker (4B100), Fault (4B110), or Rock Formation (4B160), the coalescing portion of the Contour (3A010) shall be omitted.

S-0100 When a Road (TUC 4) is coincident with a Levee (4B090, EFI 2), suppress the road and label the levee "Road on levee" following rule L-3630 for placement.

S-0101 Suppress Causeway shoreline (4B090, EFI 3) when TUC is 1 (Road and Railroad), or 3 (Railroad), or 4 (Road), and place the label "Causeway" above (preferred) the TUC feature and centered between connected shorelines. Close off (connect) the remaining gap in the shorelines.

**ESKER...4B100 (LINE)**

G-0012 Area and line features will be generalized to detail compatible with scale.

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**FEATURE: ESKER...4B100 (LINE)**

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3509** Labeling shall be positioned outside of the feature using hierarchy of placement around the feature symbol. Rule L-3505.

**FAULT...4B110 (LINE)**

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**R-2093** The Contours (3A010) around a Fault symbol shall be labeled with Contour values starting first with the index Contours, then intermediate Contour values if no index Contours are present, and last, if present, supplementary Contour values.

**GEOHERMAL FEATURE...4B115 (POINT)**

**G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**ISLAND...4B135 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

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**FEATURE: ISLAND...4B135 (AREA)**

- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.
- L-3613** Islands located  $\geq 25.5$  mm from Coastal Shoreline shall be labeled with the country name governing the Island(s). The name label shall be positioned parallel to south neatline.
- O-3012** If two or more Islands (4B135) exist within 225 m square ARA, then portray only one (1) island at inclusion condition size and represent the island as paper white within the Coastal Shoreline (2A010) or Inland Shoreline (2H075).
- O-6136** If any two or more Islands (4B135) are  $\leq 1$  mm distance to each other at the final map scale, the two shorelines (2A010 -- Coastal Shoreline) will coalesce into one at the points they are the closest to form one island, representative in size and shape of the coalesced islands. At all points the shoreline of the island must be  $\Rightarrow 0.25$ mm. apart and represented as paper white within the island.
- R-0036** Islands within Inland Shoreland (2H075) that are  $< 390,625$  m. square ARA will not be shown.
- R-1901** If any two or more Islands (4B135) are  $\leq 1$  mm to each other at the final map scale, the two shorelines (2A010--Coastal Shoreline) will coalesce into one at the points they are closest to each other.
- R-1902** Any island (4B135) or group of islands (when agglomerated) seaward of coastal shoreline (2A010), that is too small to plot at map or chart scale will be portrayed as paper white 0.25 mm. diameter within 0.20 mm. linewidth.

**MOUNTAIN PASS...4B150 (POINT)**

- G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.



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**FEATURE: MOUNTAIN PASS...4B150 (POINT)**

R-7214 Spot Elevation (3A030) shall be shown accompanying Mountain Pass (4B150) symbol.

**ROCK FORMATION...4B160 (AREA)**

**ROCK FORMATION...4B160 (POINT)**

R-2092 Spot Elevations (3A030) shall be placed on all pinnacles (4B160, RKF 003).

**SAND DUNES /SAND HILLS...4B170 (AREA)**

G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

G-0012 Area and line features will be generalized to detail compatible with scale.

G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:

- a. northeast (preferred position).
- b. southeast (1st alternate).
- c. northwest (2nd alternate)
- d. southwest (3rd alternate)
- e. top-centered (4th alternate)
- f. bottom-centered (5th alternate)

(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)

2. Minimum space between type placement and feature symbol is 0.5 mm.

3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

L-3562 If area is not large enough to place type within, move to outside and apply point hierarchy Rule L-3505.

L-3568 If area is large enough to repeat the label, 130 mm in any direction, then repeat.

R-2395 Sand Dune (4B170) patterns shall be positioned according to SDO, to the nearest 15° increment, to indicate their orientation relative to the prevailing winds.

R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

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**FEATURE: VOLCANO...4B180 (AREA)**

**VOLCANO...4B180 (AREA)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**CROPLAND (CULTIVATED)...5A010 (AREA)**

**G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.

**G-0012** Area and line features will be generalized to detail compatible with scale.

**G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**L-3568** If area is large enough to repeat the label, 130 mm in any direction, then repeat.

**R-0033** A characteristic pattern ( $\geq 2.5$  mm length at map scale) of levees (4B190, EF1 002)  $\geq 1.5$  meters HGT shall be depicted in or around rice fields (5A010, VEG 004).

**R-2007** Perennial Ditches (2H030, HYC 008) in or around rice fields (5A010, VEG 004), shall be depicted.

**R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature

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**FEATURE: CROPLAND (CULTIVATED)...5A010 (AREA)**

- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**ORCHARD /PLANTATION...5A040 (AREA)**

- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3568** If area is large enough to repeat the label, 130 mm in any direction, then repeat.
- L-4010** If PRO-019 (Other), Identify the product if possible. If not possible, omit PRO window and close up remaining type.
- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

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**FEATURE: ORCHARD /PLANTATION...5A040 (AREA)**

- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**VINEYARD /HOPS...5A050 (AREA)**

- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**GRASSLAND...5B010 (AREA)**

- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.

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**FEATURE: GRASSLAND...5B010 (AREA)**

- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**FIREBREAK...5C015 (LINE)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**OASIS...5C020 (AREA)**

- L-0050** Type sizes per area sizes at map/chart scale: Area features only.
- |              |                          |              |
|--------------|--------------------------|--------------|
| 06 point - ≤ | 770 mm sq. area and ≤    | 14 mm width  |
| 07 point - ≤ | 2,296 mm sq. area and ≤  | 28 mm width  |
| 09 point - ≤ | 5,192 mm sq. area and ≤  | 44 mm width  |
| 10 point - ≤ | 9,796 mm sq. area and ≤  | 62 mm width  |
| 12 point - ≤ | 16,632 mm sq. area and ≤ | 84 mm width  |
| 14 point - ≤ | 24,960 mm sq. area and ≤ | 104 mm width |
| 16 point - > | 24,960 mm sq. area       |              |
- Where area measurements are inconsistent, the larger type size shall be used.  
Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**OASIS...5C020 (POINT)**

- G-0008** Like point features which coalesce in clusters of 3 or more will be thinned to form a representative pattern.
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: TREES...5C030 (AREA)**

**TREES...5C030 (AREA)**

- G-0002 When any portion of the area feature does not meet the minimum geometric inclusion condition and line delineation for the feature is supported on the product, the area feature will be partially collapsed.
- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3510 Feature will be labeled at or near the center of the feature interior if the feature area is large enough to "house" this label. (If not large enough, move the placement to the outside and follow L-3505.)
- R-0032 When LMC=1 and ARA < 390,625 m square, show minimum size = 390,625 m square.
- R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as an open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**TREES...5C030 (LINE)**

- G-0012 Area and line features will be generalized to detail compatible with scale.
- G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- BOG...5D010 (AREA)**
- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.

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**FEATURE: BOG...5D010 (AREA)**

- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3510** Feature will be labeled at or near the center of the feature interior if the feature area is large enough to "house" this label. (If not large enough, move the placement to the outside and follow L-3505.)
- R-2003** If any Road (1P030), or Railroad (1N010), or Cart Track (1P010), or Trail (1P050) crosses this feature, (they) shall be depicted by (their) normal symbology. The Levee/Dike (4B090, EFI 002) shall be omitted if coincident with Track, Trail, Road, or Railroad.
- R-2005** Levees (4B090, EFI 002) and Ditches (2H030) are omitted from Cranberry Bogs (VEG 006).
- R-2006** All River/Stream channels (2H140) shall be depicted within feature, when clearly defined.
- R-3730** If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter. If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide. If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**SWAMP...5D030 (AREA)**

- G-0010** Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012** Area and line features will be generalized to detail compatible with scale.
- G-0013** Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).

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**FEATURE: SWAMP...5D030 (AREA)**

- R-2002 Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).
- R-2003 If any Road (1P030), or Railroad (1N010), or Cart Track (1P010), or Trail (1P050) crosses this feature, (they) shall be depicted by (their) normal symbology. The Levee /Dike (4B090, EFI 002) shall be omitted if coincident with Track, Trail, Road, or Railroad.
- R-2006 All River/Stream channels (2H140) shall be depicted within feature, when clearly defined.
- R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature
- R-3732 If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733 If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**MARSH...5D040 (AREA)**

- G-0010 Coincident similar area features having matching coded attribution will be blended to form a single feature.
- G-0012 Area and line features will be generalized to detail compatible with scale.
- G-0013 Feature will be generalized to provide a more aesthetic contoured feature (i.e., smoothed).
- R-2002 Where a separation between a Coastal Shoreline (2A010) or Inland Shoreline (2H075) and the outline of this feature is too narrow to plot (show to scale), it shall be depicted by a single line (common line), that being the Coastal Shoreline (2A010), Inland Shoreline (2H075), Aqueduct (2H010), Canal (2H020), Ditch (2H030), or Reservoir (2H130).
- R-2003 If any Road (1P030), or Railroad (1N010), or Cart Track (1P010), or Trail (1P050) crosses this feature, (they) shall be depicted by (their) normal symbology. The Levee /Dike (4B090, EFI 002) shall be omitted if coincident with Track, Trail, Road, or Railroad.
- R-2006 All River/Stream channels (2H140) shall be depicted within feature, when clearly defined.
- R-3730 If a clearing exists inside of an area feature, and the size of the clearing is equal to or greater than the area (ARA) inclusion condition for the surrounding area feature, the clearing is shown as a open space inside the surrounding feature. If the area of the clearing is less than the area (ARA) inclusion condition for the surrounding feature, the clearing is deleted and absorbed into the surrounding area feature



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**FEATURE: MARSH...5D040 (AREA)**

- R-3732** If two area features with the same feature code do not connect at any point, and have a space between them of less than 2.5 mm at map/chart scale, delete the open space that is less than 2.5 mm wide between the features and combine them into one area feature.
- R-3733** If a portion of an area feature has a minimum width of less than 2.5 mm at map/chart scale, delete that portion of the area feature that is not at least 2.5 mm wide, measured from perimeter to perimeter.  
If the deletion of a portion of the area based on the above criteria will reduce the ARA of the remaining portion of the area feature to below the minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.  
If the deletion of a portion of the area based on the above criteria will split two larger areas connected by a narrow strip into two separate areas, either of which would be below minimum ARA inclusion, do not delete the narrow portion of the feature that is less than 2.5 mm wide.

**ADMINISTRATIVE BOUNDARY...6A000 (LINE)**

- D-1655** If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in it's entirety 0.25 mm inside the projection line.
- G-0011** Feature must retain all cartographic detail (i.e., not thinned or smoothed).
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3623** The name of the reservations shall be positioned within the area enclosed by the boundary symbol. If the name can not be positioned within the bounded area, the name shall be positioned adjacent to the area, L-3505.
- L-3625** The names of countries, and administrative divisions shall be positioned on each respective side of, and parallel to, the boundary symbol separating the countries.
- L-3626** Where a boundary symbol is known to be more than one class of administrative division, the name of the division for each shall be shown positioned on each side of, and parallel to, the boundary symbol with a 0.5 mm space.
- L-3627** Where an international boundary is in dispute between nations, the boundary symbol shall be shown as claimed (alignment of disputed boundaries) by each nation in dispute.
- L-3628** Boundaries shall be labeled "approximate" when source information is inadequate for accurate delineation. The labeling shall be positioned on either side, top preferred, parallel to the boundary symbol and shall be repeated > 75 mm <= 100 mm.
- L-3629** When the alignment of a boundary is unclear as to whether it runs along the side or whether it runs down the center of a Road, the symbol shall be shown on either side of the Road and labeled "approximate". The label shall be positioned parallel to the boundary symbol with a 0.5 mm space between the type and boundary.

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**FEATURE: ADMINISTRATIVE BOUNDARY...6A000 (LINE)**

- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- L-4037** If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".
- L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.
- L-4879** If BST=001 (Definite), delete the BST label.
- R-0011** Secondary boundaries shall be shown in the Commonwealth if Independent States (ex-USSR) when the limits of a lesser administrative division are coincident with a higher administrative division, the boundary shall be that of the higher division.
- R-0015** Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.
- R-0016** Boundary symbols shall be positioned in center of Roads where boundary and Road are coincident. Every third unit of the boundary symbol shall be shown within the Road. The boundary symbol shall be shown wherever the boundary deviates from the Road.
- R-0017** The complete boundary symbol shall be shown 0.25 mm from the Cart Track (1P010), Road (1P030), Trail (1P050) when boundary aligns along the edge of a road.
- R-0018** Boundary symbols shall be positioned in the center of double line streams and shown fully symbolized. If the boundary is coincident with either shoreline, the boundary shall be shown fully symbolized in the open water, spaced 0.25 mm adjacent to the shoreline.
- R-0019** Where a boundary becomes coincident with a single line (linear, i.e., < 0.5 mm in width) stream, the boundary symbol shall be shown, beginning at the points of coincidence, depicting every third unit set of the symbol.
- R-0020** If the stream forms a braided drain system, the boundary symbol shall be shown in its entirety.
- R-2191** A boundary shall be shown in its complete symbology, when crossing Open Water areal features, when the alignment of the boundary is known.
- R-2192** If the alignment of the boundary is not known when crossing coastal Open Water areal features, the boundary shall be symbolized in the Open Water beginning at the points of coincidence with the Shoreline, then depicting every third unit set of the boundary symbol along coincidence.
- R-2193** When a boundary intersects the Shoreline of coastal waters and continues to national territorial coastal limits the symbol shall be shown extended from the Shoreline 25.5 mm in to the Open Water.
- R-2194** When a boundary is coincident with a neatline or projection line, it shall be shown, symbolized, in its entirety centered on the neatline or projection line. When the boundary is an International boundary, the overprint shall be portrayed in its entirety.
- R-2276** If a boundary is not recognized by the U.S. Department of State as an official international boundary, but falls under the category of "Other Line of Separation", and the type of boundary is not portrayed by another Subcategory 6A FACS feature, the TXT attribute is used to label the line in accordance with Geonames/Boundary guidance; e.g. "Administrative Line", "Provisional Administrative Line."
- R-2277** International boundaries and other lines of separation, and their associated labels, are shown in margin diagrams as well as in the body of the map or chart.

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**FEATURE: ADMINISTRATIVE BOUNDARY...6A000 (LINE)**

R-2497 In areas where there is no defined boundary between two countries (BST=004), center NM3 and NM4 in the approximate area on their respective sides of the label "NO DEFINED BOUNDARY". Pairs of labels may be repeated if necessary for large areas, but pairs should be positioned far enough apart so that they DO NOT imply a specific division line between the two countries.

**ARMISTICE LINE...6A020 (LINE)**

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in its entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-3629 When the alignment of a boundary is unclear as to whether it runs along the side or whether it runs down the center of a Road, the symbol shall be shown on either side of the Road and labeled "approximate". The label shall be positioned parallel to the boundary symbol with a 0.5 mm space between the type and boundary.

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

L-4037 If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

R-0015 Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.

R-0016 Boundary symbols shall be positioned in center of Roads where boundary and Road are coincident. Every third unit of the boundary symbol shall be shown within the Road. The boundary symbol shall be shown wherever the boundary deviates from the Road.

R-0017 The complete boundary symbol shall be shown 0.25 mm from the Cart Track (1P010), Road (1P030), Trail (1P050) when boundary aligns along the edge of a road.

R-0018 Boundary symbols shall be positioned in the center of double line streams and shown fully symbolized. If the boundary is coincident with either shoreline, the boundary shall be shown fully symbolized in the open water, spaced 0.25 mm adjacent to the shoreline.

R-0019 Where a boundary becomes coincident with a single line (linear, i.e., < 0.5 mm in width) stream, the boundary symbol shall be shown, beginning at the points of coincidence, depicting every third unit set of the symbol.

R-0020 If the stream forms a braided drain system, the boundary symbol shall be shown in its entirety.

**CEASE-FIRE LINE...6A030 (LINE)**

D-1655 If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in its entirety 0.25 mm inside the projection line.

G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).

L-3629 When the alignment of a boundary is unclear as to whether it runs along the side or whether it runs down the center of a Road, the symbol shall be shown on either side of the Road and labeled "approximate". The label shall be positioned parallel to the boundary symbol with a 0.5 mm space between the type and boundary.

L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

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**FEATURE: CEASE-FIRE LINE...6A030 (LINE)**

- L-4037** If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".
- R-0015** Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.
- R-0016** Boundary symbols shall be positioned in center of Roads where boundary and Road are coincident. Every third unit of the boundary symbol shall be shown within the Road. The boundary symbol shall be shown wherever the boundary deviates from the Road.
- R-0017** The complete boundary symbol shall be shown 0.25 mm from the Cart Track (1P010), Road (1P030), Trail (1P050) when boundary aligns along the edge of a road.
- R-0018** Boundary symbols shall be positioned in the center of double line streams and shown fully symbolized. If the boundary is coincident with either shoreline, the boundary shall be shown fully symbolized in the open water, spaced 0.25 mm adjacent to the shoreline.
- R-0019** Where a boundary becomes coincident with a single line (linear, i.e., < 0.5 mm in width) stream, the boundary symbol shall be shown, beginning at the points of coincidence, depicting every third unit set of the symbol.
- R-0020** If the stream forms a braided drain system, the boundary symbol shall be shown in its entirety.
- R-0022** Boundary shall be shown as 2nd or 3rd order boundary classification depending on next higher order boundary shown.

**INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)**

- G-0011** Feature must retain all cartographic detail (i.e., not thinned or smoothed).
- L-3625** The names of countries, and administrative divisions shall be positioned on each respective side of, and parallel to, the boundary symbol separating the countries.
- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- L-4037** If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".
- R-0015** Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.
- R-0016** Boundary symbols shall be positioned in center of Roads where boundary and Road are coincident. Every third unit of the boundary symbol shall be shown within the Road. The boundary symbol shall be shown wherever the boundary deviates from the Road.
- R-0017** The complete boundary symbol shall be shown 0.25 mm from the Cart Track (1P010), Road (1P030), Trail (1P050) when boundary aligns along the edge of a road.
- R-0018** Boundary symbols shall be positioned in the center of double line streams and shown fully symbolized. If the boundary is coincident with either shoreline, the boundary shall be shown fully symbolized in the open water, spaced 0.25 mm adjacent to the shoreline.
- R-0019** Where a boundary becomes coincident with a single line (linear, i.e., < 0.5 mm in width) stream, the boundary symbol shall be shown, beginning at the points of coincidence, depicting every third unit set of the symbol.

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**FEATURE: INTERNATIONAL MARITIME BOUNDARY...6A050 (LINE)**

**R-0020** If the stream forms a braided drain system, the boundary symbol shall be shown in its entirety.

**DEFACTO BOUND. /OTHER LINE OF SEPARATION...6A060 (LINE)**

**D-1655** If the boundary symbol and the projection line have the same line weight, the boundary symbol shall be shown in its entirety 0.25 mm inside the projection line.

**G-0011** Feature must retain all cartographic detail (i.e., not thinned or smoothed).

**L-3625** The names of countries, and administrative divisions shall be positioned on each respective side of, and parallel to, the boundary symbol separating the countries.

**L-3629** When the alignment of a boundary is unclear as to whether it runs along the side or whether it runs down the center of a Road, the symbol shall be shown on either side of the Road and labeled "approximate". The label shall be positioned parallel to the boundary symbol with a 0.5 mm space between the type and boundary.

**L-4037** If a boundary follows a road and the exact location is unknown, label "APPROXIMATE BOUNDARY".

**L-4707** If the attribute value is ACC 001 (Accurate) or EXS 001 (Definite), delete the window and condense remaining windows.

**R-0013** International Defacto Boundaries which are coincident with a first order administrative division boundary shall be shown by ticks (9D015) at points of beginning of coincidence and shall be labeled. The name label shall be positioned within the limiting ticks and parallel to the boundary symbol.

**R-0014** The accepted boundary symbol shall be shown in addition to the defacto boundary symbol where area of disagreements occur between nations.

**R-0015** Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.

**R-0016** Boundary symbols shall be positioned in center of Roads where boundary and Road are coincident. Every third unit of the boundary symbol shall be shown within the Road. The boundary symbol shall be shown wherever the boundary deviates from the Road.

**R-0017** The complete boundary symbol shall be shown 0.25 mm from the Cart Track (1P010), Road (1P030), Trail (1P050) when boundary aligns along the edge of a road.

**R-0018** Boundary symbols shall be positioned in the center of double line streams and shown fully symbolized. If the boundary is coincident with either shoreline, the boundary shall be shown fully symbolized in the open water, spaced 0.25 mm adjacent to the shoreline.

**R-0019** Where a boundary becomes coincident with a single line (linear, i.e., < 0.5 mm in width) stream, the boundary symbol shall be shown, beginning at the points of coincidence, depicting every third unit set of the symbol.

**R-2276** If a boundary is not recognized by the U.S. Department of State as an official international boundary, but falls under the category of "Other Line of Separation", and the type of boundary is not portrayed by another Subcategory 6A FACS feature, the TXT attribute is used to label the line in accordance with Geonames/Boundary guidance; e.g. "Administrative Line", "Provisional Administrative Line."

**R-2277** International boundaries and other lines of separation, and their associated labels, are shown in margin diagrams as well as in the body of the map or chart.

**DEMILITARIZED ZONE...6A070 (AREA)**

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**FEATURE: DEMILITARIZED ZONE...6A070 (AREA)**

- L-3628 Boundaries shall be labeled "approximate" when source information is inadequate for accurate delineation. The labeling shall be positioned on either side, top preferred, parallel to the boundary symbol and shall be repeated > 75 mm <= 100 mm.
- L-3629 When the alignment of a boundary is unclear as to whether it runs along the side or whether it runs down the center of a Road, the symbol shall be shown on either side of the Road and labeled "approximate". The label shall be positioned parallel to the boundary symbol with a 0.5 mm space between the type and boundary.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- R-0015 Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.
- R-2191 A boundary shall be shown in its complete symbology, when crossing Open Water areal features, when the alignment of the boundary is known.
- R-2192 If the alignment of the boundary is not known when crossing coastal Open Water areal features, the boundary shall be symbolized in the Open Water beginning at the points of coincidence with the Shoreline, then depicting every third unit set of the boundary symbol along coincidence.
- R-2193 When a boundary intersects the Shoreline of coastal waters and continues to national territorial coastal limits the symbol shall be shown extended from the Shoreline 25.5 mm in to the Open Water.
- R-2194 When a boundary is coincident with a neatline or projection line, it shall be shown, symbolized, in its entirety centered on the neatline or projection line. When the boundary is an International boundary, the overprint shall be portrayed in its entirety.

**INTERNATIONAL DATE LINE...6A110 (LINE)**

- G-0011 Feature must retain all cartographic detail (i.e., not thinned or smoothed).
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**ZONE OF OCCUPATION...6A170 (AREA)**

- L-3628 Boundaries shall be labeled "approximate" when source information is inadequate for accurate delineation. The labeling shall be positioned on either side, top preferred, parallel to the boundary symbol and shall be repeated > 75 mm <= 100 mm.
- L-3629 When the alignment of a boundary is unclear as to whether it runs along the side or whether it runs down the center of a Road, the symbol shall be shown on either side of the Road and labeled "approximate". The label shall be positioned parallel to the boundary symbol with a 0.5 mm space between the type and boundary.
- L-3630 Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.
- R-0015 Where the accuracy of a boundary changes from accurate to approximate the Point of Change symbol (9D015) shall be positioned 90 degrees perpendicular to the boundary symbol at the change over point and shall be appropriately labeled and positioned parallel to the boundary symbol with a 0.5 mm space.
- R-2191 A boundary shall be shown in its complete symbology, when crossing Open Water areal features, when the alignment of the boundary is known.

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**FEATURE: ZONE OF OCCUPATION...6A170 (AREA)**

- R-2192 If the alignment of the boundary is not known when crossing coastal Open Water areal features, the boundary shall be symbolized in the Open Water beginning at the points of coincidence with the Shoreline, then depicting every third unit set of the boundary symbol along coincidence.
- R-2193 When a boundary intersects the Shoreline of coastal waters and continues to national territorial coastal limits the symbol shall be shown extended from the Shoreline 25.5 mm in to the Open Water.
- R-2194 When a boundary is coincident with a neatline or projection line, it shall be shown, symbolized, in its entirety centered on the neatline or projection line. When the boundary is an International boundary, the overprint shall be portrayed in its entirety.

**CONTROL POINT...9B035 (POINT)**

- L-4008 If NAM = unknown, omit NAM window.
- R-0010 Control Points shall be shown > 25 mm <= 102 mm apart at map scale.
- R-0021 Control Points will never be moved (displaced) for any other feature.
- T-0015 In areas, 25 mm x 25 mm at map scale, containing >= 3 Control Points, the method of reducing the number of points shall be from the lowest order to the highest order:
- (1) Trig station
  - (2) Astronomic position

**MAGNETIC DISTURBANCE AREA...9C040 (AREA)**

- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3510 Feature will be labeled at or near the center of the feature interior if the feature area is large enough to "house" this label. (If not large enough, move the placement to the outside and follow L-3505.)

**MISCELLANEOUS CULTURAL FEATURE...9D012 (AREA)**

- L-3505 Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:
1. Positional hierarchy:
    - a. northeast (preferred position).
    - b. southeast (1st alternate).
    - c. northwest (2nd alternate)
    - d. southwest (3rd alternate)
    - e. top-centered (4th alternate)
    - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
  2. Minimum space between type placement and feature symbol is 0.5 mm.
  3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

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**FEATURE: MISCELLANEOUS CULTURAL FEATURE...9D012 (AREA)**

**L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**MISCELLANEOUS CULTURAL FEATURE...9D012 (LINE)**

**L-4260** Label shall be positioned above feature, reading left to right (or to the left of vertical feature, reading bottom to top), at a 0.5 mm distance and parallel to respective feature. Label shall preferably be positioned at the midpoint of the line segment or symbol; however, it may be displaced laterally along respective feature to avoid overprinting other symbols or labels. If space will not permit placing label parallel to feature, offset the label in accordance with Rule L-4261 below and use a leader line to identify its location along the feature.

**MISCELLANEOUS CULTURAL FEATURE...9D012 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

**POINT OF CHANGE...9D015 (POINT)**

**C-0021** The feature shall be oriented perpendicular to the associated river/stream (2H140).

**R-2173** Point of Change symbol (9D015) shall be added where approximate alignment begins and ends and placed on top of Road where labels would be placed, perpendicular to Road symbolization with staff end of symbol just touching the Road.

**R-2189** Add a Point of Change (9D015) symbol between dual and other multiple lane highways at top side of Road symbol depicted, when LTN  $\geq$  3.

**VOID COLLECTION AREA...9D020 (AREA)**

**G-0011** Feature must retain all cartographic detail (i.e., not thinned or smoothed).

**L-3568** If area is large enough to repeat the label, 130 mm in any direction, then repeat.

**NAMED LOCATION...9D040 (AREA)**

**L-0050** Type sizes per area sizes at map/chart scale: Area features only.

06 point - $\leq$	770 mm sq. area and $\leq$ 14 mm width
07 point - $\leq$	2,296 mm sq. area and $\leq$ 28 mm width
09 point - $\leq$	5,192 mm sq. area and $\leq$ 44 mm width
10 point - $\leq$	9,796 mm sq. area and $\leq$ 62 mm width
12 point - $\leq$	16,632 mm sq. area and $\leq$ 84 mm width
14 point - $\leq$	24,960 mm sq. area and $\leq$ 104 mm width
16 point - $>$	24,960 mm sq. area

Where area measurements are inconsistent, the larger type size shall be used. Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.



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**FEATURE: NAMED LOCATION...9D040 (AREA)**

- L-3608** Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:
1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.
  2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.
  3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.
  4. Classification of populated places by class shall be shown by type size.
  5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:  
1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case  
2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
5th class <= 5,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-3609** Population breakdown and the relative importance equivalent in an area not developed culturally:  
1st class > 100,000..or 1st importance (PL 1) 14 Pt Bold Condensed Upper Case  
2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
5th class <= 2,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case

**NAMED LOCATION...9D040 (LINE)**

- L-0051** Type sizes for single line features at map/chart scale.  
06 point - ≤ 80 mm length  
07 point - ≤ 160 mm length  
09 point - > 160 mm length
- L-3608** Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:
1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.
  2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.
  3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.
  4. Classification of populated places by class shall be shown by type size.
  5. Population breakdown and the relative importance breakdown equivalent in culturally developed area:  
1st class > 500,000.or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case  
2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
5th class <= 5,000.or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case

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**FEATURE: NAMED LOCATION...9D040 (LINE)**

- L-3609** Population breakdown and the relative importance equivalent in an area not developed culturally:  
1st class > 100,000...or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case  
2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
5th class <= 2,000...or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case
- L-3630** Label line feature above (preferred) and parallel to the line with a 0.5 mm space between. Above means: readable from south or east Projection neatline.

**NAMED LOCATION...9D040 (POINT)**

- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:  
1. Positional hierarchy:  
a. northeast (preferred position).  
b. southeast (1st alternate).  
c. northwest (2nd alternate)  
d. southwest (3rd alternate)  
e. top-centered (4th alternate)  
f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)  
2. Minimum space between type placement and feature symbol is 0.5 mm.  
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3608** Symbolized populated places shall be classified and labeled in accordance with five (5) categories which are to be determined as follows:  
1. When complete and up-to-date population figures are available, they shall serve as the basis for the 5 categories.  
2. The population figures of a town with the addition of enhanced importance due to being administrative centers, junctions of important Roads, rail center or another significant value to a military user.  
3. When population figures are not available or are incomplete, the size of the Built-up Areas shall be a guide to basic classification.  
4. Classification of populated places by class shall be shown by type size.  
5. Population breakdown and the relative importance breakdown equivalent in culturally developed areas:  
1st class > 500,000...or 1st importance (PPL 1) 14 Pt Bold Condensed Upper Case  
2nd class > 50,000 to <= 500,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
4th class > 5,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
5th class <= 5,000...or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case

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**FEATURE: NAMED LOCATION...9D040 (POINT)**

- L-3609** Population breakdown and the relative importance equivalent in an area not developed culturally:  
1st class > 100,000...or 1st importance (PL 1) 14 Pt Bold Condensed Upper Case  
2nd class > 50,000 to <= 100,000...or 2nd importance (PPL 2) 10 Pt Bold Cond. Upper Case  
3rd class > 10,000 to <= 50,000...or 3rd importance (PPL 3) 10 Pt Bold Cond. Upper/Lower  
4th class > 2,000 to <= 10,000...or 4th importance (PPL 4) 10 Pt Condensed Upper/Lower  
5th class <= 2,000...or 5th importance (PPL 5) 8 Pt Condensed Upper/Lower Case

**TEXT DESCRIPTION...9D045 (AREA)**

- L-0050** Type sizes per area sizes at map/chart scale: Area features only.  
06 point ~ ≤ 770 mm sq. area and ≤ 14 mm width  
07 point ~ ≤ 2,296 mm sq. area and ≤ 28 mm width  
09 point ~ ≤ 5,192 mm sq. area and ≤ 44 mm width  
10 point ~ ≤ 9,796 mm sq. area and ≤ 62 mm width  
12 point ~ ≤ 16,632 mm sq. area and ≤ 84 mm width  
14 point ~ ≤ 24,960 mm sq. area and ≤ 104 mm width  
16 point ~ > 24,960 mm sq. area  
Where area measurements are inconsistent, the larger type size shall be used.  
Where the full range of type sizes is not available for a particular label, the closest available type size shall be used.

**TEXT DESCRIPTION...9D045 (LINE)**

- L-0051** Type sizes for single line features at map/chart scale.  
06 point ~ ≤ 80 mm length  
07 point ~ ≤ 160 mm length  
09 point ~ > 160 mm length
- L-3505** Label feature as per hierarchy for topo type placement parallel to south neatline corners reading left to right:  
1. Positional hierarchy:  
a. northeast (preferred position).  
b. southeast (1st alternate).  
c. northwest (2nd alternate)  
d. southwest (3rd alternate)  
e. top-centered (4th alternate)  
f. bottom-centered (5th alternate)  
(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)  
2. Minimum space between type placement and feature symbol is 0.5 mm.  
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.
- L-3506** Names placement shall be oriented to the longest axis of the feature reading left to right and placed within the area outline and centered. If longest axis is perpendicular to the south neatline, the type shall be placed outside of the area outline, preferred position is northeast of the feature (Rule L-3505), but may be placed at any position around the feature so as not to overprint any other feature type and reading left to right.

**TEXT DESCRIPTION...9D045 (POINT)**

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**FEATURE: TEXT DESCRIPTION...9D045 (POINT)**

**L-3505** Label feature as per hierarchy for topo type placement parallel to south  
neatline corners reading left to right:

1. Positional hierarchy:
  - a. northeast (preferred position).
  - b. southeast (1st alternate).
  - c. northwest (2nd alternate)
  - d. southwest (3rd alternate)
  - e. top-centered (4th alternate)
  - f. bottom-centered (5th alternate)(Hierarchy is based on type positioning so as to avoid overprinting other type or obscuring detail.)
2. Minimum space between type placement and feature symbol is 0.5 mm.
3. This method of type placement shall be used for areal features when space does not permit labeling within that feature. When SCC = 0 Drop Window.

The digital copy of MIL-J-89100, dated 28 February 1995 does not include appendix "B", "C", "D" or "F". Copies of these appendixes must be ordered separately, please fax this page to 215-697-1462 and include your complete mailing address below.

APPENDIX B

1:250,000 SCALE JOINT OPERATIONS GRAPHIC (JOG) STYLE SHEET  
1501A (AIR)

10. SCOPE

10.1 Scope. This appendix is a graphic illustration of the design, composition, and location of the margin data. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards and handbooks.

See section 2. APPLICABLE DOCUMENTS

20.2.1 Other government documents, drawings, and publications.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. 1:250,000 SCALE 1501 JOG (AIR) STYLE SHEET

30.1 Style sheet. See next page for style sheet information foldout.

APPENDIX C

1:250,000 SCALE JOINT OPERATIONS GRAPHIC (JOG) STYLE SHEET  
1501 (GROUND)

10. SCOPE

10.1 Scope. This appendix is a graphic illustration of the design, composition, and location of the margin data. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

20.1.1 Specifications, standards and handbooks.

See section 2. APPLICABLE DOCUMENTS

20.2.1 Other government documents, drawings, and publications.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. 1:250,000 SCALE 1501 JOG (GROUND) STYLE SHEET

30.1 Style sheet. See next page for style sheet information foldout.

APPENDIX D

TYPE TEMPLATE

10. SCOPE

10.1 Scope. This appendix is intended as a tool to provide assistance where type sizes are in question or where type ranges are indicated in the referenced MIL-STD-2402.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. TYPE TEMPLATE

30.1 Type template. See next page for the type template.



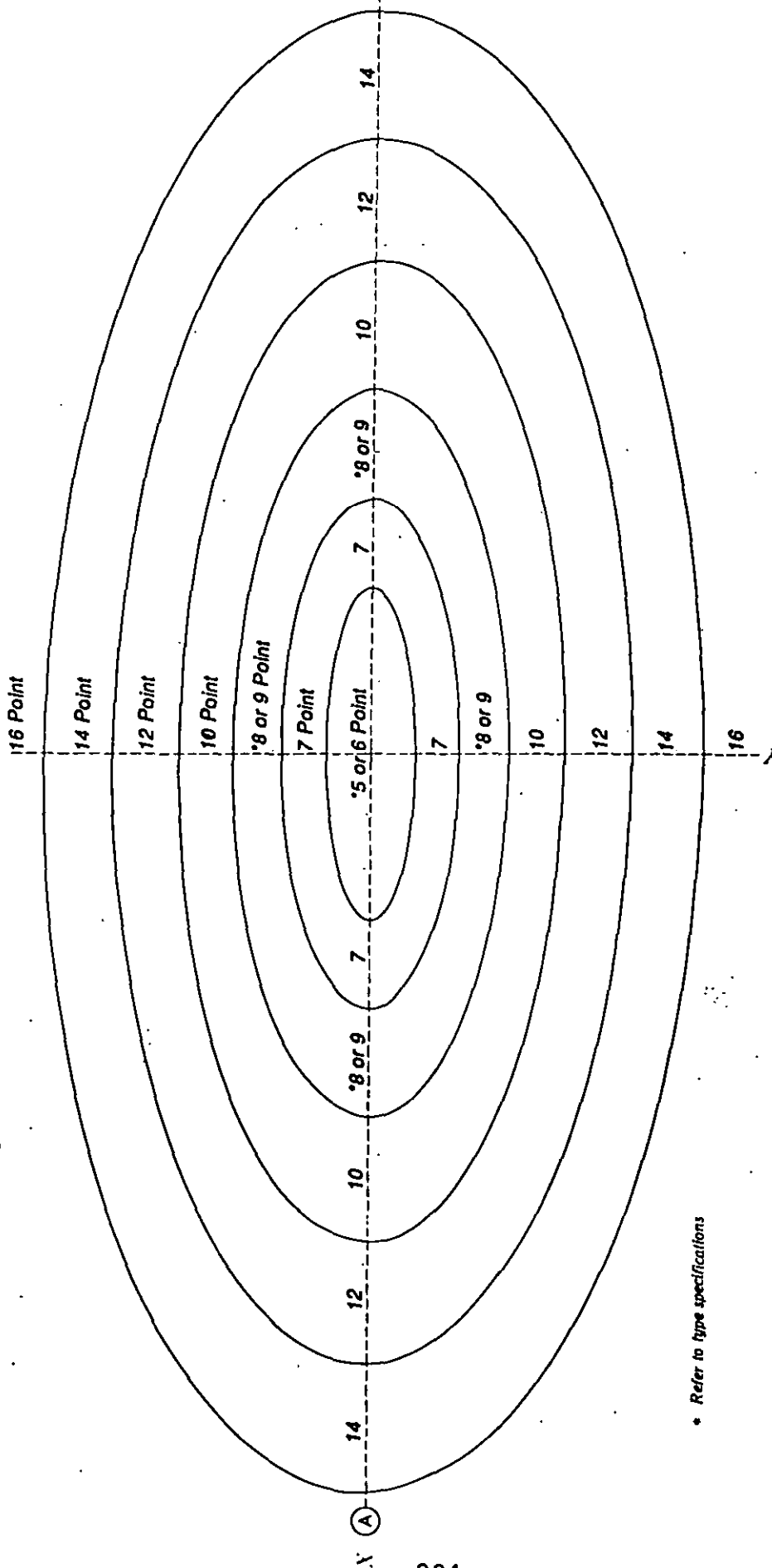
# APPENDIX D

## TYPE TEMPLET

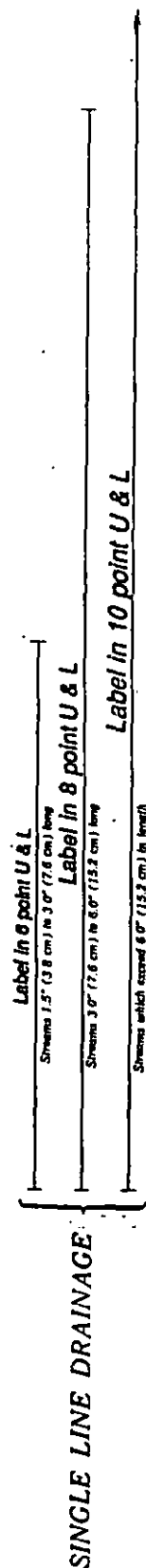
### AREA FEATURES

#### Instructions:

1. All type fonts and sizes are Swiss 742.
2. Center template over approximate center of feature.
3. Position line A-B parallel to general formation of feature.
4. Select proper type size based on overall limits of the feature. Where X and Y readings are inconsistent the larger size is selected.



• Refer to type specifications



APPENDIX E

GUIDE FOR CONTOUR INTERVALS

10. SCOPE

10.1 Scope. This appendix is intended as a tool to provide assistance in selection of contour intervals when in question or where contour intervals are indicated in the referenced MIL-STD-2402. Appendix E is a mandatory part of this specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. GUIDE FOR CONTOUR INTERVALS

30.1 Guide for contour intervals. See next page for the guide.

APPENDIX F  
GUIDE FOR ELEVATION TINT SYSTEMS

10. SCOPE

10.1 Scope. This appendix is intended as a tool to provide assistance in selection of correct elevation tints and is a mandatory part of this specification. Appendix F is a mandatory part of this specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. GUIDE FOR ELEVATION TINT SYSTEMS

30.1 Guide for elevatrion tint systems. See next page for the guide.

APPENDIX G  
CONVERSION TABLES

10. SCOPE

10.1 Scope. This appendix is intended as a tool to provide assistance in the conversion of metric to feet and feet to metric when in question or where conversion values are indicated in the referenced MIL-STD-2402. Appendix G is a mandatory part of this specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

20.1 Government documents.

This section is not applicable to this specification.

20.2 Non-government publications.

This section is not applicable to this specification.

30. CONVERSION TABLES

30.1 Conversion tables. See next page for the tables.

## APPENDIX G

## CONVERSION TABLES

METRIC CONTOURS TO FEET  
20-METER CONTOUR INTERVAL

METERS	FEET	FEET
20-Meter Interval	Foot Equivalent	Next Higher 5-Foot Value
20	65.6	70
40	131.2	135
60	196.8	200
80	262.4	265
100	328.0	330
120	393.7	395
140	459.3	460
160	524.9	525
180	590.5	595
200	656.1	660
220	721.7	725
240	787.4	790
260	853.0	855
280	918.6	920
300	984.2	985
320	1049.8	1050
340	1115.4	1120
360	1181.1	1185
380	1246.7	1250
400	1312.3	1315
420	1377.9	1380
440	1443.5	1445
460	1501.9	1510
480	1574.8	1575
500	1640.4	1645
520	1706.0	1710
540	1771.6	1775
560	1837.2	1840
580	1902.8	1905
600	1968.5	1970
620	2034.1	2035
640	2099.7	2100
660	2165.3	2170
680	2230.9	2235
700	2296.5	2300
720	2362.2	2365
740	2427.8	2430
760	2493.4	2495
780	2559.0	2560
800	2624.6	2625
820	2690.2	2695
840	2755.9	2760
860	2821.5	2825
880	2887.1	2890
900	2952.7	2955
920	3018.3	3020
940	3083.9	3085
960	3149.6	3150
980	3215.2	3220
1000	3280.8	3285

METRIC CONTOURS TO FEET  
25-METER INTERVAL

METERS		FEET		FEET
25-Meter Interval		Foot Equivalent		Next Higher 5-Foot Value
25	.....	82.0	.....	85
50	.....	164.0	.....	165
75	.....	246.0	.....	250
100	.....	328.0	.....	330
125	.....	410.1	.....	415
150	.....	492.1	.....	495
175	.....	574.1	.....	575
200	.....	656.1	.....	660
225	.....	738.1	.....	740
250	.....	820.2	.....	825
275	.....	902.2	.....	905
300	.....	984.2	.....	985
325	.....	1066.2	.....	1070
350	.....	1148.2	.....	1150
375	.....	1230.3	.....	1235
400	.....	1312.3	.....	1315
425	.....	1394.3	.....	1395
450	.....	1476.3	.....	1480
475	.....	1558.3	.....	1560
500	.....	1640.4	.....	1645
525	.....	1722.4	.....	1725
550	.....	1804.4	.....	1805
575	.....	1886.4	.....	1890
600	.....	1968.5	.....	1970
625	.....	2050.5	.....	2055
650	.....	2132.5	.....	2135
675	.....	2214.5	.....	2215
700	.....	2296.5	.....	2300
725	.....	2378.6	.....	2380
750	.....	2460.6	.....	2465
775	.....	2542.6	.....	2545
800	.....	2624.6	.....	2625
825	.....	2706.6	.....	2710
850	.....	2788.7	.....	2790
875	.....	2870.7	.....	2875
900	.....	2952.7	.....	2955
925	.....	3034.7	.....	3035
950	.....	3116.7	.....	3120
975	.....	3198.7	.....	3200
1000	.....	3280.8	.....	3285

METRIC CONTOURS TO FEET  
50-METER INTERVAL

METERS	FEET	FEET
50-Meter Interval	Foot Equivalent	Next Higher 5-Foot Value
50	164.0	165
100	328.0	330
150	492.1	495
200	656.1	660
250	820.2	825
300	984.2	985
350	1148.2	1150
400	1312.3	1315
450	1476.3	1480
500	1640.4	1645
550	1804.4	1805
600	1968.5	1970
650	2132.5	2135
700	2296.5	2300
750	2460.6	2465
800	2624.6	2625
850	2788.7	2790
900	2952.7	2955
950	3116.7	3120
1000	3280.8	3285
1050	3444	3445
1100	3608	3610
1150	3772	3775
1200	3936	3940
1250	4101	4105
1300	4264	4265
1350	4428	4430
1400	4592	4595
1450	4756	4760
1500	4921	4925
1550	5084	5085
1600	5248	5250
1650	5412	5415
1700	5576	5580
1750	5741	5745
1800	5904	5905
1850	6068	6070
1900	6232	6235
1950	6396	6400
2000	6561	6565
2050	6724	6725
2100	6888	6890
2150	7052	7055
2200	7216	7220
2250	7381	7385
2300	7544	7545
2350	7710	7715
2400	7872	7875
2450	8036	8040
2500	8202	8205
2550	8364	8365
2600	8528	8530
2650	8692	8695
2700	8856	8860

## METRIC CONTOURS TO FEET-50-METER CONTOUR INTERVAL-CONTINUED

METERS	FEET	FEET
50-Meter Interval	Foot Equivalent	Next Higher 5-Foot Value
2750	9022	9025
2800	9184	9185
2850	9348	9350
2900	9512	9515
2950	9676	9680
3000	9842	9845
3050	10004	10005
3100	10168	10170
3150	10332	10335
3200	10496	10500
3250	10662	10665
3300	10824	10825
3350	10988	10990
3400	11152	11155
3450	11316	11320
3500	11482	11485
3550	11644	11645
3600	11808	11810
3650	11972	11975
3700	12136	12140
3750	12302	12305
3800	12464	12465
3850	12628	12630
3900	12792	12795
3950	12956	12960
4000	13123	13125
4050	13284	13285
4100	13448	13450
4150	13612	13615
4200	13776	13780
4250	13943	13945
4300	14104	14105
4350	14268	14270
4400	14432	14435
4450	14596	14600
4500	14763	14765
4550	14924	14925
4600	15088	15090
4650	15252	15255
4700	15416	15420
4750	15583	15585
4800	15744	15745
4850	15908	15910
4900	16072	16075
4950	16236	16240
5000	16404	16405
5050	16564	16565
5100	16728	16730
5150	16892	16895
5200	17056	17060
5250	17224	17225
5300	17384	17385
5350	17548	17550
5400	17712	17715
5450	17876	17880
5500	18044	18045



## METRIC CONTOURS TO FEET-50-METER CONTOUR INTERVAL-CONTINUED

METERS	FEET	FEET
50-Meter Interval	Foot Equivalent	Next Higher 5-Foot Value
5550	18204	18205
5600	18368	18370
5650	18532	18535
5700	18696	18700
5750	18864	18865
5800	19024	19025
5850	19188	19190
5900	19352	19355
5950	19516	19520
6000	19684	19685
6050	19844	19845
6100	20008	20010
6150	20172	20175
6200	20336	20340
6250	20505	20510
6300	20664	20665
6350	20828	20830
6400	20992	20995
6450	21156	21160
6500	21325	21330
6550	21484	21485
6600	21648	21650
6650	21812	21815
6700	21976	21980
6750	22145	22150
6800	22304	22305
6850	22468	22470
6900	22632	22635
6950	22796	22800
7000	22965	22970

METRIC CONTOURS TO FEET  
100-METER INTERVAL

METERS	FEET	FEET
100-Meter Interval	Foot Equivalent	Next Higher 5-Foot Value
100	328.0	330
200	656.1	660
300	984.2	985
400	1312.3	1315
500	1640.4	1645
600	1968.5	1970
700	2296.5	2300
800	2624.6	2625
900	2952.7	2955
1000	3280.8	3285
1100	3608	3610
1200	3936	3940
1300	4264	4265
1400	4592	4595
1500	4921	4925
1600	5248	5250
1700	5576	5580
1800	5904	5905
1900	6232	6235
2000	6561	6565
2100	6888	6890
2200	7216	7220
2300	7544	7545
2400	7872	7875
2500	8202	8205
2600	8528	8530
2700	8856	8860
2800	9184	9185
2900	9512	9515
3000	9842	9845
3100	10168	10170
3200	10496	10500
3300	10824	10825
3400	11152	11155
3500	11482	11485
3600	11808	11810
3700	12136	12140
3800	12464	12465
3900	12792	12795
4000	13123	13125
4100	13448	13450
4200	13776	13780
4300	14104	14105
4400	14432	14435
4500	14763	14765
4600	15088	15090
4700	15416	15420
4800	15744	15745
4900	16072	16075
5000	16404	16405
5100	16728	16730
5200	17056	17060
5300	17384	17385
5400	17712	17715

## METRIC CONTOURS TO FEET-100-METER CONTOUR INTERVAL-CONTINUED

METERS	FEET	FEET
100-Meter Interval	Foot Equivalent	Next Higher 5-Foot Value
5500 .....	18044 .....	18045
5600 .....	18368 .....	18370
5700 .....	18696 .....	18700
5800 .....	19024 .....	19025
5900 .....	19352 .....	19355
6000 .....	19684 .....	19685
6100 .....	20008 .....	20010
6200 .....	20336 .....	20340
6300 .....	20664 .....	20665
6400 .....	20992 .....	20995
6500 .....	21325 .....	21330
6600 .....	21648 .....	21650
6700 .....	21976 .....	21980
6800 .....	22304 .....	22305
6900 .....	22632 .....	22635
7000 .....	22965 .....	22970

## CONVERSION OF FOOT CONTOURS TO METERS\*

FOOT	METERS	METERS
Contour	Metric Equivalent	Specified (5 meter) Value
10	3.0	5
20	6.1	5
30	9.1	10
40	12.2	10
50	15.2	15
60	18.3	20
70	21.3	20
80	24.4	25
90	27.4	25
100	30.5	30
120	36.6	35
140	42.7	45
150	45.7	45
160	48.8	50
180	54.9	55
200	61.0	60
220	67.1	65
240	73.2	75
250	76.2	75
260	79.2	80
280	85.3	85
300	91.4	90
320	97.5	95
340	103.6	105
350	106.7	105
360	109.7	110
380	115.8	115
400	121.9	120
420	128.0	130
440	134.1	135
450	137.2	135
460	140.2	140
480	146.3	145
500	152.4	150
520	158.5	160
540	164.6	165
550	167.6	170
560	170.7	170
580	176.8	175
600	182.9	185
620	189.0	190
640	195.1	195
650	198.1	200
660	201.2	200
680	207.3	205
700	213.4	215
720	219.5	220
740	225.6	225
750	228.6	230
760	231.6	230
780	237.7	240
800	243.8	245
820	249.9	250

\*FOR USE ONLY WHEN MAP SOURCES CONTAIN CONTOURS IN FEET

## CONVERSION OF FOOT CONTOURS TO METERS\* - CONTINUED

FOOT	METERS	METERS
Contour	Metric Equivalent	Specified (5 meter) Value
840	256.0	255
850	259.1	260
860	262.1	260
880	268.2	270
900	274.3	275
920	280.4	280
940	286.5	285
950	289.6	290
960	292.6	295
980	298.7	300
1000	304.8	300
1100	335.3	335
1200	365.8	365
1300	396.2	395
1400	426.7	425
1500	457.2	450
1600	487.7	490
1700	518.2	520
1800	548.6	550
1900	579.1	580
2000	609.6	610
2500	762.0	760
3000	914.4	910
3500	1066.8	1070
4000	1219.2	1220
4500	1371.6	1370
5000	1524.0	1520
5500	1676.4	1680
6000	1828.8	1830
6500	1981.2	1980
7000	2133.6	2130
7500	2286.0	2290
8000	2438.4	2440
8500	2590.8	2590
9000	2743.2	2740
9500	2895.6	2900
10000	3048.0	3050
10500	3200.4	3200
11000	3352.8	3350
11500	3505.2	3500
12000	3657.6	3660
12500	3810.0	3810
13000	3962.4	3960
13500	4114.8	4110
14000	4267.2	4270
14500	4419.6	4420
15000	4572.0	4570
15500	4724.4	4720
16000	4876.8	4880
16500	5029.2	5030
17000	5181.6	5180
17500	5334.0	5330
18000	5486.4	5490
18500	5638.8	5640

\*FOR USE ONLY WHEN MAP SOURCES CONTAIN CONTOURS IN FEET.

## CONVERSION OF FOOT CONTOURS TO METERS\* - CONTINUED

FOOT	METERS	METERS
Contour	Metric Equivalent	Specified (5 meter) Value
19000	5791.2	5790
19500	5943.6	5940
20000	6096.0	6100
20500	6248.4	6250
21000	6400.8	6400
21500	6553.2	6550
22000	6705.6	6700
22500	6858.0	6860
23000	7010.4	7010
23500	7162.8	7160
24000	7315.2	7310
24500	7467.6	7470
25000	7620.0	7620
25500	7772.4	7770
26000	7924.8	7920
26500	8077.2	8080
27000	8229.6	8230
27500	8382.0	8380
28000	8534.4	8530
28500	8686.8	8690
29000	8839.2	8840

NOTE: In most instances the difference in the specified metric values between 500-foot intervals is 150 meters; in some cases the difference is 160 meters. To derive conversions for contours that are not listed in the tables and that fall between listed values where the difference in the specified metric values is 160 meters, increase the interval value to 35 meters between the second and third and the third and fourth contours.

Example: Find the metric values to be assigned to the  
3300- and 3400-foot contours.

3,000 feet	910 meters
	<u>+ 30</u>
(1) 3,100 feet	940 meters
	<u>+ 30</u>
(2) 3,200 feet	970 meters
	<u>+ 35</u>
(3) 3,300 feet	1005 meters
	<u>+ 35</u>
(4) 3,400 feet	1040 meters
	<u>+ 30</u>
3,500 feet	1070 meters

\*FOR USE ONLY WHEN MAP SOURCES CONTAIN CONTOURS IN FEET.

APPENDIX H

LANGUAGE REQUIREMENTS  
(for Margin of Graphic)

10. SCOPE

10.1 Scope. This Appendix provides the requirements for languages to be used in the margin data for each country. This Appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

30. MARGIN LANGUAGE REQUIREMENTS.

30.1 Language requirements. See next page for language requirements information.

## APPENDIX H

## LANGUAGE REQUIREMENTS (for Margin of Graphic)

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Afars and Issas, ..... French Territory of the	English	
Afghanistan .....	English .....	NJ 43-10 Chinese and English
Albania .....	Greek and English ...	NK 34-4, -10 Greek, Italian, and English
Algeria North of 30°N .....	French and English	
South of 30°N .....	English	
American Samoa .....	English	
Andorra .....	Spanish, French, .... and English	Andorra is completely contained on Sheet NK 31-4
Angola .....	English	
Annobon .....	See Equatorial Guinea	
Antartica and ..... adjacent islands	English	
Argentina .....	Spanish and English .	SG 21-8, -16; SG 22-5, -9, -13 SH 21-3, -6, -7, -10 Spanish, Portuguese, and English
Asension Island .....	English	
Australia .....	English	
Austria .....	German, Italian, .... and English	NL 32-2; NM 33-10 German, French, and English NL 33-6 Italian and English
Azores .....	English and Portuguese	
Bahamas .....	English	
Bahrain .....	English	
Balleny Island .....	English	
Bangladesh .....	English	
Barbados .....	English	



## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Belgium .....	French, Dutch, and English	NM 31-9 French and English NM 32-4 French, German, and English
Belize .....	Spanish and English	NE 16-10, -14 English
Benin .....	English	
Bermuda .....	English	
Bhutan .....	English	NG 45-4; NG 46-1, -2 NH 45-16; NH 46-13 Chinese and English
Bismark Archipelago ....	English	
Bjornoya .....	Norwegian and (part of Svalbard) English	
Bolivia .....	Spanish and English	SC 19-8, -10, -11, -12, -14, -15; SC 20-5, -9, -13; SD 20-1, -2, -3, -7, -8, -12, -16; SE 20-4; SE 21-1, -2, -6, -10, -14 Spanish, Portuguese, and English
Bonin Islands .....	English	
Botswana .....	English	
Bouvetoya .....	Norwegian and English	
Brazil .....	Portuguese and English	NA 19-7, -8, -10, -11, -12, -14, -16; NA 20-1, -2, -6, -9, -10 -13; NB 20-12, -13, -14, -15, -16; SA 19-2, -6, -10, -14; SB 18-4, -8, -11, -12, -15; SB 19-1, -2; SC 18-3, -4, -8 SC 19-5, -6, -8, -9, -10 -11, -12, -14, -15; SC 20-5, -9, -13; SD 20-1, -2, -3, -7, -8, -12, -16; SE 20-4; SE 21-1, -2, -6, -10, -14; SF 21-2, -6, -10, -11, -16; SG 21-4, -8, -16;

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Brazil-continued		SG 22-5, -9, 13; SH 21-3, -7, -10, -11, -15, -16; SH 22-13; SI 22-1, -5 Portuguese, Spanish, and English NA 21-7, -8, -11 Dutch, Portuguese, and English NA 22-5, -14 French, Portuguese, and English
Brunei .....	English	
Bulgaria .....	Greek, Turkish, ..... and English	NL 34-12 Greek, Italian, and English
Burma .....	English .....	NC 47-2, -3, -6, -7, -10; ND 47-2, -6, -7, -10, -11, -15; NE 47-2, -3, -5, -6, -10, -14 Thai and English NF 47-1, -2, -3, -7, -11; NG 47-2, -6, -10, -14; NH 47-13, -14 Chinese and English NF 47-12 Lao, Chinese, and English NF 47-15 Lao, Thai, and English NF 47-16 Lao and English
Burundi .....	English	
Cabinda .....	English	
Cambodia .....	Khmer ..... (where available) and English; otherwise French and English	NC 48-1 ND 48-5, -6, -13 Khmer, Thai, and English NC 48-3, -4, -5, -6, -7; ND 48-12, -16 Vietnamese, Khmer, and English ND 48-7, -8, -11 Lao, Khmer, and English
Cameroon .....	English	
Canada .....	English	

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Canary Islands .....	English	
Cape Verde Islands .....	English	
Caroline Island .....	English	
Caroline Islands .....	English	
Central African Republic	English	
Chad .....	English	
Chagos Archipelago .....	English	
Chile .....	Spanish and English ...	
China, Peoples Republic of	Chinese and English ...	NF 47-8, -12 Chinese, Lao, and English NF 48-2, -3, -5, -6, -7, -8, -12; NF 49-9 Chinese, Vietnamese, and English NJ 51-3; NK 51-12; NK 52-5, -6, -7, -8 English, Chinese, and Korean
China, Republic of .....	See Taiwan	
Columbia .....	Spanish and English ...	NA 19-7, -10, -12, -14;
Comoro Islands .....	English	
Congo .....	English	
Cook Islands .....	English	
Costa Rica .....	Spanish and English	
Crozet, îles .....	English	
Cuba .....	English	
Cyprus .....	English	
*Czechoslovakia (Former)	French, German, and English	NL 33-3; NL 34-1; NM 33-10, -11, -12 German, Italian, and English
Denmark .....	Danish, German, and English	NO 32-8, -9 Danish and English

\*The former Czechoslovakia is now comprised of two countries; Czech Republic and Slovakia

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Dominican Republic .....	Spanish and English ...	NE 18-8; NE 19-1, -5 French, Spanish, and English
Drygalski Island .....	English	
Easter Island .....	Spanish and English	
Ecuador .....	Spanish and English	
Edgeoya .....	Norwegian and English	
(part of Svalbard)		
Egypt .....	English	
El Salvador .....	Spanish and English	
Equatorial Guinea .....	English	
(Annobon, Fernando Po, Rio Muni)		
Estonia .....	English .....	NO 34-3; NO 35-1 Norwegian and English
Ethiopia .....	English	
		SA 19-2, -6, -10, -14; SB 19-2 Spanish, Portuguese, and English
Falkland Islands .....	English	
(Ilas Malvinas)		
Fanning Island .....	English	
Faroe Islands .....	See Equatorial Guinea	
Fiji Islands .....	English	
Finland .....	Norwegian and English ..	NO 34-1; NP 33, 34-3, -7, -15; NQ 33, 34-4, -8, -16; NQ 35, 36-9; NR 33, 34-9, -12 Swedish, Norwegian, and English
Flint Island .....	English	
France .....	French and English .....	NK 30-3, -6; NK 31-4, -5 French, Spanish, and English NK 32-1, -5, -8; NL 32-4, -7, -10 French, Italian, and English

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
France-continued		NL 32-1; NM 32-7, -10; NM 32-8, -11 French, German, and English NM 31-2, -5, -6 French, Dutch, and English
French Guiana .....	English .....	NA 21-4; NA 22-1; NB 21-12, -16 French, Dutch, and English NA 21-8 Dutch, Portuguese, and English NA 22-5; NB 22-14 Portuguese, French, and English
French Polynesia .....	English	
Gabon .....	English	
Gambia .....	English	
Germany .....	German, French, and English	NL 32-3; NL 33-1 German, Italian, and English NM 31-3, -6 French, Dutch, and English NM 32-1; NN 32-7, -10 German, Dutch, and English NN 32-2, -5, -6; NN 33-4 German, Danish, and English
Ghana .....	English	
Gibraltar .....	English and Spanish	
Gilbert Islands .....	English	
Gough Island .....	English	
Greece .....	Greek and English .....	NJ 35-2, -6, -10, -15; NK 34-9; NK 35-7, -8, -10, -11 Greek, Turkish, and English
Greenland .....	Danish and English	
Guam .....	English	

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Guatemala .....	Spanish and English	
Guinea .....	English	
Guinea-Bissau .....	English	
Guyana .....	Dutch and English .....	NA21-1, -5, -9, -10; NB 21-9, -13 Portuguese and English NA 21-7, -11 Dutch, Portuguese, and English NB 20-4, -8; NC 20-16; NC 21-13 Spanish and English NB 20-12 Spanish, portuguese, and English
Haiti .....	French and English .....	NE 18-8; NE 19-1, -5 French, Spanish, and English
Hawaiian Islands .....	English	
Heard Island .....	English	
Honduras .....	Spanish and English	
Hong Kong .....	Chinese and English ....	NF 49-8; NF 50-5
Hungary .....	Italian and English ....	NL 33-3; NL 34-1; NM 33-12 German, Italian, and English NM 34-10, -11, -12 French, German, and English
Iceland .....	Icelandic and English	
India .....	English .....	NG 45-3, -4; NG 46-2; NH 44-1, -2, -6; NH 45-15, -16; NH 46-11, -12, -15, -16; NH 47-9, -13; NI 44-1, -2, -5, -6, -9, -13; NJ 43-15, -16; NJ 44-13 Chinese and English
Indonesia .....	English	
Iran .....	English	

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Iraq .....	English .....	NJ 38-9, -10 Turkish and English
Ireland .....	English	
Israel .....	English	
Italy .....	Italian and English ....	NK 32-1; NL 32-4, -7, -10 Italian, French, and English NK 34-10 Italian, Greek, and English NL 32-3, -5, -6; 33-1, -4 Italian, German and English
Ivory Coast .....	English	
Jamaca .....	English	
Jan Mayen .....	Norwegian and English	
Japan .....	English	
Jordan .....	English	
Kenya .....	English	
Kerguelen, files .....	English	
Korea .....	Korean and English .....	NJ 51-3; NK 51-12; NK 52-5, -6, -7, -8 Chinese, Korean, and English
Kuwait .....	English	
Laos .....	Lao (where available) ... and English; otherwise French and English	ND 48-3; NE 47-4, -8, -12; NE 48-5, -6, -9, -10 -14, -15; NF 17-15, -16 Lao, Thai, and English ND 48-4; NE 48-2, -7, -11, -12 -16; NF 48-9, -13, -14 Lao, Vietnamese, and English ND 48-7, -8, -11 Lao, Khmer, and English

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Laos-Continued		NF 47-8, -12 Lao, Chinese, and English
Latvia .....	English	
Lebanon .....	English	
Lesotho .....	English	
Lesser Antilles .....	English .....	ND 19-14 Spanish and English
Liberia .....	English	
Libya .....	English	
Liechtenstein .....	French, German, and English	Liechtenstein is completely contained on Sheet NL 32-2
Line Islands .....	English	
Lithuania .....	English	NN 34-6, -9 French, German, and English
Loyaute, îles .....	English	
Luxembourg .....	French, German, and English	NM 31-6 Dutch, French, and English NM 31-9 French and English
Macao .....	Chinese and English .....	Macao is completely contained on Sheet NF 49-8
Madagascar .....	English	
Maderia Islands .....	English	
Malawi .....	English	
Malaysia .....	English .....	NB 47-7, -8, -12; NB 48-9 Thai and English
Malden Islands .....	English	
Maldiv Islands .....	English	
Mali .....	English	
Manahiki .....	English	
Mariana Islands .....	English	



## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Marquises, Iles .....	English	
Marshall Islands .....	English	
Mauritania .....	English	
Mauritius .....	English	
McDonald Island .....	English	
Mexico .....	Spanish and English	
Monaco .....	French, Italian, and English	Monaco is completely contained on Sheet NK 32-1
Mongolia .....	English .....	NK 47-1; NK 48-4, -5 -6; NK 49-2, -4; NL 46-1, -8, -12; NL 49-8, -9, -11; NL 50-5, -7; NM 45-12 Chinese and English
Morocco		
North of 30°N .....	French and English	
South of 30°N .....	English	
Mozambique .....	English	
Nauru .....	English	
Netherlands .....	French, Dutch and English	NM 32-1; NN 32-7, -10 Dutch, German, and English NM 32-4 French, German, and English
New Caledonia and outlying islands...	English	
New Hebrides .....	English	
New Zealand .....	English	
Nicaragua .....	Spanish and English	
Niger .....	English	
Niue .....	English	
Norway .....	Norwegian and English	
Oman .....	English	

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Pakistan .....	English	
Palmerston Atol .....	English	
Palmyra Atoll .....	English	
Panama .....	Spanish and English	
Paraguay .....	Spanish and English .....	SE 21-14; SF 21-2, -6, -10, -11, -15, -16; SG 21-4, -8 Spanish, Portuguese and English
Peru .....	Spanish and English .....	SA 19-10, -14; SB 18-4, -8, -11, -12, -15; SB 19-1, -2; SC 18-3, -4, -8; SC 19-5, -9, -10, -14 Spanish, Portuguese and English
Philippines .....	English	
Phoenix Islands .....	English	
Pitcairn Islands .....	English	
Poland .....	French, German, and English	
Portugal .....	Portuguese and English ....	NJ 29-4, -8, -12; NK 29-5, -8, -9, -12 Spanish, Portuguese, and English
Prince Edward Island ...	English	
Puerto Rico .....	English	
Qatar .....	English	
Reunion .....	English	
Río Muni .....	See Equatorial Guinea	
Rodrigues .....	English	
Romania .....	Italian and English .....	NK 34-3; NK 35-1, -2, -3; NL 35-10, -11, -12 Turkish, Greek, and English

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Romania-Continued		NL 34-11, -12 Italian, Greek, and English NL 35-1, -4, -7 Italian, Turkish, and English NL 35-2, -3, -5, -6, -8, -9; NM 35-11 Turkish and English NM 34-12 French, German, and English
Rotuma Island	English	
*USSR (Former)	English	Sheets to the south of 48°N and west of 54°E are in Turkish and English, except: NJ 43-2, -5, -6, -10; NK 43-9, -10, -11, -12; NK 44-2, -4, -5, -7 NK 52-3; NL 44-3, -6, -7, -8, -9, -10, -11; NL 45-1, -4; NL 52-3, -9, -12; NL 53-1, -2, -4, -5, -7; NM 45-8, -10, -11; NM 50-3, -6, -8, -9; NM 51-1; NM 52-1, -4, -7, -8, -11, -12; NM 53-10, -11; NN 51-7, -8, -9, -10, -12; NN 52-10 Chinese and English NK 52-6 Chinese, Korean, and English NL 34-3 Italian and English NL 35-1 Italian, Turkish, and English NM 34-3, -6, -9, -12; NN 34-6, -9, -12 German, French, and English

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
*USSR (Former)-Continued		NP 35, 36-3, -7, -10, -11, -14; NR 35, 36-8, -11 Norwegian and English
Rwanda .....	English	
Saint Helena Island ....	English	
Saint Paul, île .....	English	
Saint Pierre and Miquelon .....	English	
Sala y Gómez, Isla .....	Spanish and English	
San Marino .....	Italian and English	
Sao Tome and Principe ..	English	
Saudi Arabia .....	English	
Scott Island .....	English	
Senegal .....	English	
Seychelles .....	English	
Sierra Leone .....	English	
Singapore .....	English	Singapore is completely contained on Sheet NA 48-10
Socotra .....	English	
Solomon Islands .....	English	
Somalia .....	English	
South Africa, Republic of .....	English	
Southern Rhodesia .....	English	
South Georgia .....	English	
South Orkney Islands ...	English	
South Sandwich Islands .	English	
South Shetland Islands .	English	

\*USSR (Former)-As of this printing the former USSR now is comprised of 15 independent countries; Russia, Armenia, Azerbaijan, Byelarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, and Moldova

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
South-West Africa .....	English	
Spain .....	Spanish and English .....	NJ 29-3 Portuguese and English NJ 29-4, -8, -12; NK 29-5, -8, -9, -12 Spanish, Portuguese, and English NK 30-3, -6; NK 31-4, -5 Spanish, French, and English
Sri Lanka .....	English	
Starbuck Island .....	English	
Sudan .....	English	
Surinam .....	Dutch and English .....	NA 21-4; NA 22-1; NB 21-12, -16 Dutch, French, and English NA 21-7 Portuguese, and English NA 21-8 Dutch, Portuguese and English
Svalbard .....	Norwegian and English	
Swaziland .....	English	
Sweden .....	Norwegian and English .....	NN 33-1, -2; NO 33-10 Danish, German, and English NO 32-3, -6; NO 34-1; NP 33, 34-1, -3, -5 -7, -9, -13, -15; NQ 33, 34-2, -4, -5, -6, -8, -9; NQ 34-12, -13, -16; NQ 35, 36-5 NQ 35, 36-9; NR 33, 34-9, -11 Norwegian and English NO 32-9 Danish and English NO 34-2; NP 31, 32-4; NP 33, 34-4;

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Switzerland .....		NL 31-6 French and English NL 32-1, -2 French, German, and English NL 32-3, -5, -6 German, Italian, and English NL 32-4, -7 Italian, French, and English NL 32-8 Italian and English
Syria .....	English .....	NI 37-1; NJ 37-11, -12, -13, -14, -15; NJ 38-9 Turkish and English
Taiwan .....	Chinese and English	
Tanzania .....	English	
Thailand .....	Thai and English .....	NC 48-1; ND 48-5, -6, -9, -13 Thai, Khmer, and English ND 48-3; NE 47-4, -8, -12; NE 48-5, -6, -9, -10, -14, -15; NF 47-15, -16 Thai, Lao, and English
Timor .....	English	
Togo .....	English	
Tokelau Islands .....	English	
Tonga Islands .....	English	
Trinidad and Tobago ....	English .....	NC 20-7 Spanish and English
Tristan da Cunha .....	English	
Tuamotu, Iles .....	English	
Tubuai, Iles .....	English	
Tunisia .....	French and English	
Turkey .....	Turkish and English .....	NJ 35-2, -6, -10, -15; NK 35-5, -8, -10, -11 Turkish, Greek, and English

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Tuvalu .....	English	
Uganda .....	English	
United Arab Emirates ....	English	
United Kingdom .....	English	
Upper Volta .....	English	
Uruguay .....	Spanish and English .....	SH 21-10, -11, -12, -15, -16; SH 22-13; SI 22-1, -5 Spanish, Portuguese, and English
Venezuela .....	Spanish and English .....	NA 19-7, -8, -12, -16; NA 20-1, -2, -6, -10, -13; NB 20-12, -13, -14, -15, -16 Spanish, English, and Portuguese
Vietnam .....	Vietnamese and English ....	NF 48-1, -3, -6, -7, -8, -12; NF 49-9 Vietnamese, Chinese, and English NF 48-5 Chinese, Vietnamese, and English ND 48-4; NE 48-2, -7, -11, -12, -16; NF 48-9, -13, -14 Vietnamese, Lao, and English NC 48-3, -4, -5, -6, -7; ND 48-12, -16 Vietnamese, Khmer, and English
Wake Island .....	English	
Wallis and Futuna .....	English	
Walvis Bay .....	English	
Western Sahara .....	English	
Western Samoa .....	English	

## LANGUAGE REQUIREMENTS - Continued

COUNTRY	LANGUAGE	REMARKS OR SHEET EXCEPTIONS
Yemen (Aden) .....	English	
Yemen (Sana) .....	English	
*Yugoslavia (Former).....	Italian and English	NK 34-1; NK 34-2, -4; NL 34-11, -12 Italian, German, and English NK 34-3, -6, -9 Greek, Turkish, and English NK 34-5, -7, -8, -11 Greek and English NL 33-4, -5 Italian, German, and English
Zaire .....	English	
Zambiam .....	English	

\* As of this printing the United States view is that the Socialist Federal Republic of Yugoslavia has dissolved and that none of the successor states ( Montenegro, Macedonia, Slovenia, Croatia, Bosnia and Hercegovina, and Serbia) represents its continuation.



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